The Art of Questioning in the Classroom

FRANCES M. AUSTIN

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by

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TO

THE MEMORY OF

REGINALD PERCY AUSTIN

I keep six honest serving-men
(They taught me all I knew);
Their names are What and Why and When
And How and Where and Who.
I send them over land and sea,
I send them east and west;
But after they have worked for me,
I give them all a rest.

. . . . .

But different folk have different views;
I know a person small—
She keeps ten million serving-men,
Who get no rest at all!
She sends 'em abroad on her own affairs,
From the second she opens her eyes—
One million Hows, two million Wheres,
And seven million Whys!

Rudyard Kipling,
"The Elephant's Child".
Just So Stories.

PREFACE

"TEACHERS are born, not made." This is a misleading half-truth. The present writer has seen hundreds of teachers make their first attempts. One or two of these were unusually gifted for teaching and might with a little stretch of imagination and some inaccuracy be called "born teachers", but the plain fact is that teaching is hard skilled work and the vast majority of people are neither very good nor very bad at it at first. Some enjoy it from the beginning and easily and quickly learn from their own experience, from their colleagues, from books and from lectures. The majority find the first year or two difficult and need all the help they can get to enable them to reach more than a mediocre level in a reasonably short time.[1] Obviously the more efficient a teacher is in her first years the more her pupils benefit, or to put it as truly but less kindly the less her pupils suffer.[2]

Class teaching at the present time is particularly difficult, for aims are high, and in some respects conditions are bad, notably in buildings and in the size of classes. It is hard for a beginner to get even moderately good results without excessive worry and exhausting use of energy.

[1] "The McNair Report" (Teachers and Youth Leaders. H.M. Stationery Office, 1944, p. 82) recommends a probationary year for all teachers taking a first appointment in the schools. The main purpose of the probationary year is to help the young teacher to settle into the profession with the minimum of disappointment and discomfort.

[2] *His* may of course be read for *her*.

Yet once the initial difficulties are overcome there is no more satisfying profession in the world.

This book has two aims. The first is the short-term aim of helping the beginner with some of the practical problems which will certainly be met at the outset. In class, constant changes are going on and the teacher must respond immediately to new situations as they arise. There is little time for thought, and techniques which are sometimes dubbed " tricks of the trade " or " rules of thumb " are useful until there is time to think. Even the efficient experienced teacher uses them, though of course she uses them intelligently because she has tried them, thought about them and either accepted them as worthy of use or adapted them to suit herself. Real efficiency in teaching, however, is never merely a matter of " rule of thumb ". Indeed " rules of thumb " and " tricks of the trade " may hamper rather than help progress after a certain level has been attained. They do not stimulate thought sufficiently, so the best teachers even in the chrysalis stage feel the need of something further.

In the long run therefore the second or long-term aim of this book is the more important one. It is to set the beginner on the way to thinking out solutions to her own teaching problems; to testing old methods and trying new ones for herself; to finding out where, when and why, certain recognized ways of doing things are preferable to others; to relying on her own intelligent study of the science and art of teaching and learning; to accepting, rejecting or modifying, suggested methods according to whether or not they suit her own abilities, inclinations and aims, as well as the children she teaches

and the conditions in which she is required to teach. Psychological facts and educational principles underlie the practical suggestions here put forward. Where possible these are indicated, though sometimes so briefly that the theoretical implications will be appreciated only after experience and further study. It is hoped, however, that these practical suggestions may be immediately useful, and that the beginner will seek reasons for their success (or failure in some cases) when she applies them.

Questioning, the special subject of the book, plays a lively and indispensable part in learning, teaching and testing. The value of being able to question well is undoubted, and it is well worth while to pay special attention to the matter from the beginning, for weakness in questioning is almost universal with beginners and greatly retards general improvement in efficiency.

One renowned educationalist goes so far as to write " the success and efficiency of our teaching depends more on the skill and judgment with which we put questions than on any other single circumstance ". He calls the power to question well " one of the fine arts of teaching ", an art which can be acquired " only by persistent and painstaking practice ".[1] Few, if any, beginners have a high degree of skill in questioning. All have the necessary basis of qualities on which to acquire it.

It is hoped that young teachers will find in the pages which follow ideas to stimulate them to pay attention to

[1] See Bagley, W. C., *The Educative Process* (Macmillan, 1918), pp. 270–275, 289 f., 320–327. See also Hamilton, E. R., *The Teacher on the Threshold* (University of London Press, 1946), pp. 161–165.

the art of *answering* questions as well as to the art of asking them. There is justification for the claim that "if school conditions were as they ought to be, the need for studying the art of answering questions would long ago have appeared more urgent to teachers than the need for studying the art of asking them ".[1]

When little children ask questions they are sometimes, even to-day, told that " children should be seen and not heard ", or that " curiosity killed the cat ", and strong social opprobrium attaches itself to activities like eavesdropping, and peeping through keyholes. But curiosity is not to be frowned upon in all its manifestations. We hope to show that it is a most valuable quality, and that children's questions should be sympathetically treated. At the moment however we would merely draw attention to two facts. A child is often thwarted by unsatisfactory answers to his questions, and made to feel guilty for having asked them (for example questions about sex), and further, it is the thwarted child who is likely to resort to prying, or in later life to unwarranted interference in other people's affairs.

By dealing sensibly with a child's curiosities we can contribute to his ability to live in harmony with the people around him. This is important, for the child, like the adult, needs approval from his fellow human beings. Similarly, a given society needs the co-operation of its individual members.

If children are snubbed, thwarted or discouraged too strongly they are less ready to expose themselves again. They are then more liable to direct their enquiries to other and possibly less reliable sources of information

[1] *Forum of Education*, VI, No. 1, p. 35, Feb. 1928, " The Scientific Interests of a Boy in Pre-School Years ", by Two Parents.

and the teacher or parent has missed a valuable opportunity for education.

Another effect of snubbing is to drive a sensitive child more fully "into himself", he becomes more sensitive and more shy and may make up answers for himself, creating fantasies and building up inaccuracies from which he will find it hard to free himself later on.

Tougher children may react by naughtiness, and this is probably the healthier reaction, though it has its own dangers and may in extreme cases be the forerunner of serious delinquencies.

If children are severely snubbed and thwarted at home in the early years there is always the risk that by the time they come to school difficult emotional states have already been set up. The thwarting of strong, universal and necessary processes such as self-assertiveness and curiosity may result in or encourage shame, sulkiness, shyness, jealousy, peevishness or stubbornness. The teacher's task is then more difficult than it need be. The child's self-confidence must be re-established at least in the school environment and in relationship to the class and teacher.

Suppression and discouragement of enquiries about matters of sex and birth were common in the past generation, and are still too common to-day. Information has often been gained by children from dubious sources by secret enquiries. The effects of this will be seen for some time, for a generation brought up in this way cannot readily shake off its self-consciousness and its feelings of guilt or shame in connection with these matters.

Children cannot be allowed complete freedom at all times, at home and in school, to ask endless questions.

A compromise must be sought between this kind of treatment and the kind which makes a child feel severely snubbed or guilty when he asks too many questions for the adult to answer conveniently, or when he creates embarrassing situations by asking awkward ones.

I should like to express my cordial thanks to several of my colleagues, past or present; to Mr. A. P. Braddock, M.A., Dr. Janet MacGregor, and Dr. D. J. McCracken, who read the whole of the typescript and made many helpful comments; to Miss Elizabeth Law, B.A., for a number of improvements in phraseology; and finally to Emeritus Professor C. W. Valentine, who read several chapters in the early stages of production and who guided my own first steps in the art of questioning in the classroom.

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CONTENTS

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CHAPTER I

THE CHILD'S FIRST PROBLEMS AND FIRST QUESTIONS

ALL through life man is engaged in a struggle to gain or to keep mastery over his surroundings. Between birth and death he finds, and makes, never-ending problems to solve and questions to ask or answer. To some of these he never finds the answer, as when he leaves the world asking "Whither?" or "Why?"

The adult hardly needs to be reminded of his own numerous personal problems, but if he takes the trouble to observe himself at intervals during the day he will probably be surprised to find the questioning attitude all-pervasive in his life. If his intellectual and social development are fairly high he will find himself concerned not only with his own immediate problems, but also with problems of community life, local, national or international, and with general questions of science, philosophy and religion.

When he was at the adolescent stage of development he had many problems to solve before he learnt to adapt his rapidly developing physical, intellectual, emotional and moral qualities to the outside world. He met a particularly large and varied crop of questions, to many of which he was disinclined to ask openly for answers. Amongst these are commonly found questions about sex, marriage, vocation, religion, morality and social reform.

As for the small child, his questions often seem

endless to his teacher or parent. In fairness to the child we must remember that he has sometimes reason to feel the same about the questions of his parent or teacher.

Even the babe in his cot demonstrates adaptation to environment and problem-solving. He has at birth the physical power to respond automatically in certain ways to certain stimuli. He reacts *against* such stimuli as loud and sudden noise and glaring light, and *towards* others such as air and food. So far as we can judge, his actions are at first unreflective, but we very soon find ourselves applying to them such terms as *avoiding* and *seeking*. At some point, level or stage, impossible to detect, reflection begins to develop or creep in. Just how the physical behaviour of the baby is related to the fundamental mental quality of *awareness* is unknown. The connection seems to be extremely intimate in infancy, and though in adulthood we may achieve something we like to call "pure thought", it seems likely that even this retains a fundamental connection with physical behaviour. Anyhow, the child in the first few years of his life becomes aware of something later to be called "self", other things which are "not-self", and certain kinds of relationships between self and not-self. He appears to begin to take a deep interest in these things, and he attempts to control them.

When he can creep about the room his sphere of influence becomes vastly wider. He has already gained some control over his own body, over the people round him and over the things within reach. Now he crawls about, "explores", "experiments", "gets into everything". He rises to his feet, falls, rises again, and so on, until at last he can stand. Even at this stage an

observer can hardly avoid the conclusion that the child is setting himself problems, and rejoicing in attempts to solve them.

When he is about two years old he can push a chair to a given place in order that he may climb into it, and get something otherwise out of reach. A little later he has made a great advance, and can of his own accord fetch a chair from another room to solve his problem and gain his objective.

Probably he has now begun to verbalize his difficulties. We must remember, however, that long before he can speak he seems to be asking questions with looks, expressive cries, grunts or gestures.

Professor Valentine [1] noticed a facial expression of "puzzlement" in one of his subjects at the early age of seven and a half months. He writes:

> "B. saw my face covered with shaving soap and gazed at me with a puzzled expression."

At nine months old the same child tried repeatedly to pick up shadows of coloured balls on the floor of his play-pen, and sometimes looked at his hand afterwards.

At about the age of a year and a half words begin to arrive. The child's physical activities are usually accompanied by a good deal of jargon which rapidly becomes replaced by "real words" until soon there are "more words than jargon".[2] He acquires question words like *what* and *who*, and uses them repeatedly. He likes to answer questions as well as ask them—

[1] Valentine, C. W., *The Psychology of Early Childhood* (Methuen and Co., Ltd., 1942), p. 451.
[2] Gesell, A., *The First Five Years of Life* (Methuen), p. 213.

questions, for example, about animals in his picture-book. He may be able to name the animals or to point to the correct one in reply to a question.

At the age of two he is likely to ask questions like "Where Mummy?" or a why-question about people or animals. Sometimes these question words are used playfully or imitatively or as a mere speech performance, so care must be taken in drawing conclusions from them regarding the child's understanding of the question and of the words involved.[1] All the same between two and two and a half years of age a good working knowledge of question-words in simple situations is acquired, and questions can be put as well as answered intelligently.

A report of an American investigation by Gellermann [2] into the behaviour of two two-year-old children and of two young chimpanzees aged five and six years provides us with examples of the early use of verbalization in problem-solving activities, and presumably an indication of the parting of the ways between ape and man. The chimpanzees and the children were given the same wordless problems to solve. In order to obtain food they had to choose between differently marked boxes. One box marked with a triangle would contain food, while another marked with, let us say, a circle or a square would be empty. Both the children and the

[1] Selections of questions which are answerable by children, and problems which are solvable at different mental ages and levels of development, are used to make up standard intelligence tests. The student should refer to standard authors such as Ballard, Charlotte Bühler, Burt, Gesell, Terman and Merrill, Valentine.

[2] Gellermann, Louis W., "Form Discrimination in Chimpanzees and Two-Year-Old Children", *J. Genet. Psychol.*, 1933, 42, 3–27, 28–50.

chimpanzees learnt to discriminate between the boxes by means of the signs. Both would look at the boxes and fail. Both would after a time *trace* the triangle and the circle or square with their fingers and success would soon follow. The food would be obtained.

One point of difference between the behaviour of child and chimpanzee is of special interest to us.[1] At times the child might be heard saying, " Yes, yes, yes, yes " or " No, no, no, no " before choosing or rejecting a box. Nothing of the kind is reported for the chimpanzees.

These children of two years were already well on the way to verbal and vocal formulation of problems. They already vocally verbalized the answers. The ability to verbalize problems, silently and vocally, has been of the utmost importance to man and it seems fairly safe to believe that we have here, even if in a very primitive and elusive state of development, a record of incidents which are of great interest in the study of the evolution of language, of the human mind and of human society.[2]

[1] Gellermann, Louis W., *op. cit.*, p. 26. " The children . . . formulate the general nature of the problem verbally, and, in the absence of instructions, they formulate verbally their own instructions."

[2] Gellermann, Louis W., *op. cit.*, p. 47. " The children were superior to the chimpanzees in the discrimination of form *per se* and in adapting to changes in the combinations of stimuli. The verbal behaviour of the children indicated that these subjects formulated their problems symbolically and utilized self-administered instructions in the different tests. *Every verbal solution that was evident clearly was made before the children made the correct responses.* On the basis of these facts it is evident that a large part of the superiority of the children to the chimpanzees in making the discriminations involved in these tests was due to their ability to short cut to problem solution by means of verbal behaviour (symbolic processes)."

Presumably a somewhat earlier level of development is illustrated by an incident in the behaviour of Sultan, one of the "cleverest" apes studied by Koehler.[1] Sultan solved a practical problem in a particularly fascinating manner. He was in his cage, and outside the cage, beyond his reach, was some enticing fruit. There were two bamboo sticks inside the cage. These could be fitted together to make one stick long enough to reach the fruit and rake it in through the bars of the cage. For some time Sultan didn't seem to be able to "see" the solution even though the sticks and the objective were in full view. Then on one occasion when he had half turned his back on the food and was playing with the two sticks he suddenly pushed them together and they made one long stick. He whirled round and immediately raked the food into the cage through the bars. It was as if he suddenly "saw" the solution once the appropriate tool was ready. Koehler called this "insight", and records that Sultan continued not only to perform the act but showed that he realized its meaning.

It may well be that this behaviour of Sultan is a sign that the chimpanzee had reached an important evolutionary level of mental development preceding verbalization. There may have been something of the nature of imagery (visual or kinæsthetic) involved. We cannot tell. We do not even know in what sense Sultan "realized" the meaning. But we do know that the chimpanzee's "insight" remains at a low level compared with the child's. At about the age of two, when language is developing, the child rapidly out-

[1] Koehler, Wolfgang, *The Mentality of Apes* (Kegan Paul, 1927), p. 127.

strips the chimpanzee in this respect and can combine, to an ever-increasing degree, "insight" with physical manipulation. Throughout his problem-solving life, however, the human being resorts to physical manipulation when higher mental processes fail to produce a solution. Often, too, he tries physical manipulation first. None the less when he begins to use words as symbols the child leaves the chimpanzee far behind, and undoubtedly amongst the most important of his words are the question-words, what, why, when, how, where, who and all the rest.

Physical manipulation still has a strong hold on the three-year-old child. This often seems to be random and undirected. But its combination with, and its use in, the solving of problems which he can now put into words becomes very interesting at this age. Gesell found that the child of *three* tended to become so intrigued with the puzzle box, a piece of apparatus used in Gesell's tests, "that he not only solves it but, having solved it, he reinstates the situation so that he can re-solve it".[1]

Another task sometimes set in testing the three-year-old child is that of extracting a ball from a box. When he solves the problem and gets the ball he is likely to prefer to re-solve the puzzle rather than to play with the ball as the two-year-old would do.[2] At three, too, in his "tireless drive towards perceptual clarification"[3] and his passion for "naming, classifying, identifying, comparing" he *asks* numerous questions and can *answer* many questions about the things around him. Action

[1] Gesell, A., *The First Five Years of Life* (Methuen), p. 187.
[2] *Ibid.*, p. 41.
[3] *Ibid.*, p. 42.

often accompanies or takes the place of a verbal answer. If he is asked, "What is the baby in the picture doing?" he may give the answer in action with or without words.

He plays with and experiments with question-words, as with other words. Sometimes this seems to be almost automatic and the "questions" need no answers. None the less he is thereby gaining experience, achieving speech and clarifying words. At this age, too, an important social development becomes obvious. His questions show that he has begun to wish to conform to the standards of behaviour around him. He seeks assurances from others that his answers to questions are right and he may ask regarding his own answers or his own actions, "Is that right?" or "Do it this way?",[1] and show distress if the answer is in the negative, and pleasure if approval is given him. Sometimes he can even be heard giving himself verbal reassurance.

The four-year-old child is particularly likely to overflow with questions, some of them apparently senseless, but in reality fulfilling some purpose. He is likely for example to persist with his "Why? Why? Why?" until the adult is unwilling, or unable, to answer. The child may want an answer but sometimes his questions are for some such purpose as to gain attention or to maintain social contact. (This device is easily observable in adult behaviour as well as in that of children.)

At the age we are now considering, namely, four years old, the child's command of language enables him to establish contact with other people more satisfactorily than was possible before he could talk, though even then

[1] Gesell, A., *The First Five Years of Life* (Methuen), p. 46.

he demanded by other means attention to his needs and accomplishments.

At this age too he has begun to realize that he is part of a larger whole. Gesell gives an interesting example. A child who was being examined in a clinic asked the examiner " Do you spank children who don't finish? " Gesell comments that this is, " A revealing question, which discloses that the 4-year-old realizes his equivalence with other children who come to the Clinic under similar circumstances ".[1] " This realization ", he continues, " denotes a fundamental noetic attitude which pervades his intellectual life and raises the level of his social life." There seems to be some dim attempt at this age to organize experience, and to generalize, driving the child to ask questions.

Establishment of social contact is not the only purpose served by the four-year-old child's questions. Anyone who has tried to get answers at this age is likely to appreciate the situation described by Gesell when some four-year-old children at the clinic pursued their questions to such an extent that the examiner found that he himself was being examined.

The child is practising the mechanism of speech; he is gaining mastery over words, phrases and sentences with which to express thoughts, wishes and feelings. He is liable to use a question-form of words without wanting, or waiting for, the answer which, naturally, the adult supposes is required.

In many cases where the child asks apparently futile questions he is probably formulating his own verbal or language problems rather than seeking to solve the problem actually suggested to the adult by the question.

[1] Gesell, A., *The First Five Years of Life* (Methuen), p. 48.

It is hardly necessary to add that verbalization often helps in the solution of problems even for the adult.

Gessell [1] gives an interesting case of children of four years who can make a satisfactory square when they are drawing a *house* but who have great difficulty in copying a square. Some ask what it is and whether it is a box, or a house, or a window, and will not attempt the drawing till they find an answer. Sometimes a child will answer for himself—" It's a box " or " It's a house " and will then draw his usual picture of a box or a house with little or no reference to the model. He seems to be drawing something to represent a house rather than " copying a square ".

The five-year-old child [2] more often really wants to know. He may ask fewer questions than when he was four but they are likely to appear to the adult to be more relevant. They seem to be more meaningful and they are less trying than the earlier more constant stream. Questions are still used for the purpose of social intercourse or for practice in speech but the child more often wants a " real " answer. He asks seriously " What is this for? " " How does it work? " " What does it mean? " " Who made those things? " He is interested in the practical aspect of things and his definitions are in terms of use. He also asks for the meanings of words.

A change may be noticed in his way of answering questions. When he was four he was liable to elaborate, e.g. when asked " What scratches? ", he would name the cat and go on to tell about his dog as well. Now his

[1] Gesell, A., *The First Five Years of Life* (Methuen), p. 205.
[2] *Ibid.*, p. 55.

answer is more succinct and to the point and he may simply say " A cat " in answer to the question " What scratches? ".

The questions of the five-year-old child are not always easy to answer. " Who made God? " is a common question for children of this age to ask. Valentine [1] gives examples such as: " When there was no egg, where did the hen come from? " and " If Helen caught my whooping cough, and I caught mine from Billie, how did the first girl in the world to get whooping cough get it? "

The date of the appearance of the different question-words varies greatly from child to child. The following passage from a study of " A Child's Attainment of the Sentence " [2] summarizes the dates of their appearance in the case of one little girl.

> " The first questions were as to the whereabouts of things. At 18 months T. evidently asked for her father after his departure on a journey by ' Dadda? ' Such single-word questions were rarely used for a year, the first *where* appearing at 30 months.
>
> " The names of things were occasionally asked from 24 to 31 months by pointing to the objects and a questioning, ' Mamma, gadda? '. *What* first appeared at 31 months.
>
> " *What for* was first heard at 38 months, *why* and *how* at 40 months, and *when* at 43 months.
>
> " There was much trouble in mastering the form of the question, from 42 to 52 months most of her

[1] Valentine, C. W., *The Psychology of Early Childhood* (Methuen, 1942), p. 481.

[2] *Journal of Genet. Psychol.*, 1933, 42, 222 f. Article: " A Child's Attainment of the Sentence ", Margaret Morse Nice.

enquiries being worded like declarative sentences, only the intonation differing. It was not until she was five and a half years old that this difficulty was entirely overcome.

"In her conversations the first questions appear at 25 months, when they make up 3 per cent. of the sentences. After this there is an increase, reaching a maximum of 23 per cent. at 34 months, later sometimes dropping to 2 or 3 per cent., but rising again to 11 per cent. at 39 and 42 months and 18 per cent. at 43 months."

A child's mental development is dependent on his environment. This should call forth and encourage questions, for by means of these a child learns to live intelligently, to rejoice in knowledge and in his own mental activity, to think clearly and to develop methods of enquiry. It is through knowledge of, and interaction with, his environment (including his fellows), that he learns to establish the harmonious relationships, physical and mental, which are necessary for satisfactory existence in modern society. Children will gladly ask questions if they get the chance. The teacher's first task is to provide an environment which will arouse questions. This is easy. Her next task is gently to guide and direct the questioning which may at first be aimless or merely imitative until it becomes purposeful, intelligent, persistent investigation. This guidance should eventually lead at least some children to careful investigation in scientific, philosophical, æsthetic or practical subjects.

It should give all an opportunity to learn how to investigate and study, so that when a problem arises they have some idea of how to tackle it, whether it be to enquire of experts, of books or of natural objects and

phenomena. It should show them how to search for and collect evidence, how to reject the irrelevant, to organize and arrange the relevant. Instinctive, or pseudo-instinctive, reactions should be controlled, modified and guided, and intelligent behaviour take their place when such behaviour is, by the standards and ideals of the society in which they live, desirable.

These aims of education should be explicit. The child should have become aware of them by school-leaving age.

Evasion, Stalling and Apparently Irrelevant Answering.

Sometimes children will evade or " stall " when asked a question. The teacher who tries to understand why she does not get direct answers to questions is on the way to a better understanding of the child-mind.

The student will easily find examples for herself in school. A few cases follow in order to illustrate the kind of thing which may be expected from the small child.[1]

Gesell [2] in an examination asked a four-year-old girl one of his usual questions, "What bites? " She answered correctly. He went on to ask, " What swims? " and her answer was, " Oh, I'll tell you. I was playing with Barbara and a big dog came in and he bit me right on the arm: Which arm was it, Ma? " Gesell's comment is: " She was obviously giving a delayed response to the preceding question, ' What bites? ' . . . but the connection is not always as clear as this, and many apparent ' flights of ideas ' are actually (from the

[1] Note, however, that adults also indulge in stalling and evading: parents and teachers not excluded.

[2] Gesell, A., *The First Five Years of Life* (Methuen), p. 204.

point of view of 4-year maturity!) quite logically related to the point in hand."

"Stalling" sometimes takes the form of question-asking by the child in answer to questions asked of him. Occasionally this questioning by the child represents an intelligent analysis of the problem, but more often it is simply verbal overflow, or stalling while the situation is being sized up. The four-year-old, unable to see through a test, may evade by "going out of the field" verbally or by turning the question back on the examiner—often so persistently that, in order to avoid answering, the examiner must go out of the field himself by shifting to another test for the time being.

So long as he is maintaining attention, the *three-year-old* [1] is likely to answer at random rather than refuse. A succession of puzzling questions, however, leads him to drop his attention, and he may give no heed to further questions, or he may say, "I don't want to do that any more". He may ask for some specific substitute or go out of the field completely by talking about irrelevant topics. A favourite escape is to get up and walk about the room, commenting on the things seen there. The *four-year-old* may behave similarly, but he is inclined to be more positive in his demand that the questioning be dropped. The *five-year-old* devises excuses, or tries to shift the blame, e.g. "My mother doesn't want me to say that one".

Both the four-year-old children and the five-year-olds, especially the superior children, may turn the question back on the examiner with some such comment as, "*You* tell *me* that!".[2] Wordsworth's poem called

[1] Gesell, A., *The First Five Years of Life* (Methuen), pp. 205, 226.
[2] *Ibid.*, p. 227.

Anecdote for Fathers which begins " I have a boy of five years old " illustrates beautifully one kind of behaviour we might expect when a five-year-old child is cornered by a difficult " why " question.[1]

We end this section with an amusing account of adult evasion and quibbling. It is taken from *The Adventures of Handy Andy* and is supposed to have occurred during a nineteenth-century election in Ireland.

> " The following was now prosecuted vigorously on both sides, each party anxious to establish a majority on the first day; and of course the usual practices for facilitating their own, and retarding their opponent's progress, were resorted to.
>
> " Scatterbrain's party, to counteract the energetic movement of the enemy's voters, and Murphy's activity, got up a mode of interruption seldom made use of, but of which they availed themselves on the present occasion. It was determined to put the oath of allegiance to all the Roman Catholics, by which some loss of time to the Eganite party was affected.
>
> " This gave rise to odd scenes and answers, occasionally: some of the fellows did not know what the oath of allegiance meant; some did not know whether there might not be a scruple of conscience against taking it; others, indignant at what they felt to be an insulting mode of address . . . would not answer immediately, and gave dogged looks, and sometimes dogged answers.
>
> " The examination of one herculean fellow who came up to vote ran nearly thus:

[1] See Appendix II, p. 186, this book.
See also Sturt and Oakden, *Matter and Method in Education* (Kegal Paul, 1941), Chapter on Questioning.

"'You're a Roman Catholic?' 'Am I?' said the fellow.

"'Are you not?' demanded the agent. 'You say I am' was the answer.

"'Come, sir, answer—What's your religion?' 'The true religion.'

"'What religion is that?' 'My religion.'

"'And what's your religion?' 'My mother's religion.'

"'Do you confess?' 'Not to you.'

"'Come! now I have you. Who would you send for if you were likely to die?' 'Doctor Growlin'.'

"'Not for the priest?' 'I must first get a messenger.'

"'Confound your quibbling! Tell me, then, what your opinions are—your conscientious opinions, I mean?'

"'They are the same as my landlord's.'

"'And what are your landlord's opinions?'

"'Faith, his opinion is, that I won't pay him the last half-year's rent; and I'm of the same opinion myself.'

"A roar of laughter followed this answer, and dumbfounded the agent for a time, but, angered at the successful quibbling of the sturdy and wily fellow before him, he at last declared, with much severity of manner, that he must have a direct reply. 'I insist, sir, on your answering, at once, are you a Roman Catholic?'

"'I am,' said the fellow.

"'And could you not say so at once?' repeated the officer.

"'You never asked me," returned the other.

"'I did,' said the officer.

"'Indeed, you didn't. You said I was a great many things, but you never asked me—you were drivin' cross words and crooked questions at me,

and I gave you answers to match them, for sure I thought it was manners to cut out my behaviour on your own pattern.' "

The Adventures of Handy Andy, by Samuel Lover. (The Parkside Press Edition, pp. 78 f.)

Some hints on answering children's enquiries. These should of course be modified to suit special cases.

If possible answer at once as simply and directly as possible. Children learn not to ask questions if tedious answers are given. Do not spoil eagerness by withholding answers unnecessarily, nor hold up a train of thought so long that interest vanishes.

If you don't know the answer to a question, say so. Suggest trying to find an answer, and suggest methods of doing so, e.g. looking it up in a reference book or setting up an experiment, or asking someone else who is likely to know. Help in the investigation as much as necessary. It may seem best to promise to find out for the next lesson. If you can give only part of the answer, say so and give it.

Some answers can be postponed. If a promise is made to give the answer later be sure to do so. Premature questions (e.g. those which the teacher means to deal with later in her course) can be commended and the children can be told that the class is going on to that soon. They may be partially answered there and then or left unanswered if that seems satisfactory. Then in the next lesson you might start off by saying " You remember last week Mary asked me . . . . . ., and I said, ... Now I want to follow up Mary's question."

Occasionally a question calls for praise or dis-

approval. Children should learn to distinguish for themselves between useful and unsatisfactory questions. They should know when a foolish, irrelevant, careless, impertinent or trivial question has been asked. Questions of this kind may come from a healthy class but they must be controlled. Sometimes they may be ignored, sometimes labelled as irrelevant or careless. Or they may be commented on merely by a smile or a gesture. The child may be asked to answer his own question, or another child may be allowed to do so in order to show up its triviality or irrelevance. If a question is foolish or of interest to only a few, a promise to answer it privately may meet the case.

CHAPTER II

SOME MOTIVE FORCES BEHIND PROBLEM-SETTING AND PROBLEM-SOLVING

CURIOSITY is one of the motive forces behind problem-setting and problem-solving and its importance has long been recognized in the educational world.

" Curiosity in children . . ." wrote Locke in 1693 [1] (and he was by no means the first to recognize its value) " is but an Appetite after Knowledge; and therefore ought to be encouraged in them; not only as a good sign but as the great Instrument Nature has provided to remove that Ignorance they were born with and which, without this busy Inquisitiveness will make them dull and useless Creatures."

Recently the Ministry of Education has mentioned some of the points stressed by Locke in the quotation given above. In a pamphlet [2] it is stated that the aim of the new junior schools " will be to make the fullest use of the lively interest of children in their own personal achievements and their active curiosity about the world around them ". But as the same pamphlet truly says in its first paragraph " The Act [3] represents

[1] Quick, R. H., *Locke on Education*, p. 103. See also Appendix I (this book) for Locke's suggestions of ways of encouraging curiosity and keeping it busy.

[2] " The Nation's Schools. Their Plan and Purpose." Ministry of Education Pamphlet No. 1 (H.M. Stationery Office, 1945), p. 9, § 28.

[3] Education Act, 1944.

only the framework of a reformed national system of education: it is essential to development and progress, but cannot of itself guarantee the freshness, imagination and vigour with which the life and work of the schools should be infused."

The young teacher has no difficulty in recognizing the active curiosity of children, nor in believing that she ought to be able to use it in the service of education. Unfortunately theoretical recognition by the Ministry and by the teacher is not enough. Good teaching needs good conditions as well as good ideas and good teachers.

Practical co-operation from teachers, without which the Ministry of Education's aim for the new junior schools cannot be achieved, must be seriously limited where good working conditions are not provided. One absolute essential is that the number of children in a class should be a manageable one. Parents who try to cope with the "lively interest" and the "active curiosity" of their own children, or even of a single child, will sympathize with the teacher who tries to cope with these in a class of forty or fifty children. If she is working in an unsatisfactory room her difficulties are increased, but even in the most satisfactory circumstances in this respect, her task is not an easy one. Only very limited scope can be allowed for the individual activities, curiosities and interests of the forty or fifty active growing young human beings in her charge. For the most part a young teacher with a large class must treat the class as a whole. She is compelled by circumstances beyond her control to concentrate on mass-production. She must to a large extent use traditional methods of class teaching and class management even when individual work would be more satis-

factory. On the other hand class teaching is not entirely bad. Children benefit by it in ways impossible in individual teaching. They are learning to live in a community, to serve the community and to be served by it.

Fortunately for the class-teacher and the children the members of any one class exhibit many similar interests and curiosities and she can base her work on these. Otherwise her task would be an impossible one. The difficulties involved, however, make it imperative that she should give the matter her serious consideration and do her best to allow as many opportunities as possible for individual development.

Although all children at the same stage of development are very much alike, no two of them are exactly alike. Nor are all children at the same stage of development interested in, or curious about, the same thing at the same time in the same way.

When a child enters school for the first time he will already to some extent have developed individual interests, curiosities and abilities. These may weaken or develop during school days and new ones will arise and persist or disappear.

Eventually every child should leave school with live interests. Some of these should be interests common to human beings, but each human being should feel justified in having also his own special interests or hobbies, and he should have learnt to be tolerant of those of other people. These hobbies are seldom "mere escapes" and even if they were they would probably be serving a useful purpose.

During school life as varied an environment as possible should be provided and individual reactions respected.

Wherever possible attention should be paid to individual differences, and each child should be given individual attention when possible.

There is a third, and an important, alternative. It is not necessary for a teacher to depend entirely on class teaching or even on class teaching with a little individual work pushed in where possible. She should sometimes be able to arrange for the children to work in groups smaller than the whole class. She should study methods of "group-work" carefully with her own particular class in mind, and try them for herself. Here again the beginner meets real difficulties, and many of these will persist until group-work in different school subjects and in different activities has become more fully developed and more fully used in the schools. The writer has known several enthusiastic young teachers who on their own initiative, but with the approval of their colleagues, tried to run their classes on a modified Dalton Plan [1] in their early years of teaching. They were right to try, but they were also right to abandon the attempt, for it required too much expenditure of energy even where the head mistress was very willing for the experiment to continue. Sometimes more resistance came from the children in the early stages than from anyone else. Children, like their elders, form habits which they do not want to break. They like variety in details, and occasionally they like a complete change in their class procedure. Usually, however, they are so devoted to class routine that they will not readily change it at the request of a newcomer at the teacher's desk. The young teacher of large

[1] The Dalton Plan is a plan for individual work. See Parkhurst, Helen, *Education on the Dalton Plan*, 1930 (G. Bell and Sons Ltd.).

classes has often quite as much as she can manage without attempting to break old habits in the children and substitute new ones. But she should seize every promising opportunity to do group work.

The mind is a unity; and though curiosity is undoubtedly a motive force to be reckoned with and lies behind many questions and problems of children and adults, it does not lie alone. It seldom, if ever, works alone. Other motive forces are easily detected behind problem-setting and problem-solving. Let us note some of them; for they too can and should be directed to the service of education through problems and questions.

A child who sets himself a problem and solves it or attacks a problem set for him by others behaves in a manner which has in the past been attributed to the action of supposed " instincts ", or " innate tendencies " or " innate propensities " called by such names as self-assertion, curiosity, manipulation, exploration, pugnacity, rivalry, imitation, play, construction, gregariousness. It has generally been taken for granted by educationalists that these mental dispositions are innate and are passed on from parent to child, perhaps in some manner comparable to the inheritance of physical characteristics. This may be an inaccurate, and even in some respects a misleading assumption to make, but it has proved useful and it is unnecessary here to discuss its validity. Whether or not there are heritable mental characteristics, dispositions or structures of the kind assumed by instinct theories; whether or not such complex structures as those mentioned above are in reality not inherited but built up after birth by the interaction of the environment on other relatively simple structures, such as those involved in the

seeking and avoiding reactions observable in the newborn child, are questions which must be left for the future to answer. We do not, as teachers, need to decide whether these qualities are or are not heritable in the strict biological sense of the word in order to meet successfully our immediate and pressing problems in the classroom. But most emphatically we do need to recognize the importance of environment and the overwhelming effect it has on these qualities whether they are innate or acquired. They can profitably be looked on as *socially heritable* in the forms and stages of development present at school age and after.

We cannot do anything about a given school-child's ancestral stock, but we can influence his environment. The earlier in life good environmental influences are at work on a child the better and the classroom should provide as happy an environment as possible for " the major task—primarily the task of teachers . . . of ensuring that the schools . . . secure for children a happier childhood and a better start in life." [1]

Self-assertion [2] or *the mastery motive* [3] is a powerful motive in life. It plays its part in problem-setting and problem-solving and must have special mention here. It may initiate action and it often prompts us to persistence after the effort to solve a problem has begun and difficulties are being encountered. Even when a problem has at first appeared to be of minor importance and has been attacked half-heartedly, great

[1] " The Nation's Schools. Their Plan and Purpose." Ministry of Education Pamphlet No. 1 (H.M. Stationery Office), para. 2.

[2] McDougall, W., *Social Psychology* (Methuen), 13th ed., p. 62, " Positive self-feeling " or elation is the name given by McDougall to the emotion which accompanies self-assertion or self-display.

[3] Woodworth, R. S., *Psychology* (Methuen), 10th ed., p. 312.

energy and determination may appear if trials and difficulties are met on the way to solution. Zest is added. The prospect of victory is sweet, and with the solution there often comes a glow of satisfaction and a surge of "positive self-feeling" which is a great incentive to future undertakings.

In Woodworth's words, the mastery motive "appears in the more aggressive form of striving to command, to lead, to dominate the situation, to master and manage an object, and in the more defensive form of resistance to domination and dislike of defeat. Some persons who are not especially eager to dominate nevertheless hate to be dominated . . . the activities in which this motive appears . . . all have a common trend—from inferiority to superiority, from defeat to victory, from a state of being thwarted to a state of mastery."

Such characteristics as we have mentioned as operative in problem-solving continue to show themselves plainly all through life. In addition they work through more complicated structures, formed by themselves and other characteristics which become intimately bound up together, as personality and character develop.

The development of sentiments and groups of sentiments, and of predominating master-sentiments in many people's lives; the growth of personality and character, along with aims, purposes, values and ideals, is so complicated that, fascinating as it would be to try to picture it, however imperfectly, it must be left for the teacher to outline for herself with the help of the literature available.[1]

[1] For example: (1) McDougall, W., *Social Psychology* (Methuen), p. 260. The terms *sentiment* and *master-sentiment* are used above in

These highly developed influences, no less than the simpler ones, are behind our problem-solving and our problem-setting. The mind is a whole and it seems possible that the more complicated characteristics of the adult mind are built up on the simpler ones we have mentioned earlier. It seems possible too that curiosity, self-assertion and the other so-called " innate tendencies " may prove to be innate only in the sense that they are founded on still simpler structures or characteristics which are innate in the strict sense of the word. It may be that some of our " innate tendencies " which we have so long thought of as " instincts " are really innate and heritable from our parents directly, and that others are not. It may be that fear, curiosity, self-assertion and the others have evolved in the course of man's development in some way comparable with the evolution of his physical characteristics and closely connected with them, e.g. the emotion of fear with *avoiding* reactions and curiosity with *seeking* reactions. It may be that the environment plus child-nature produces them, or that environment awakens them in the child though it does not produce them, or thirdly, that whatever the environment they would inevitably appear. We cannot be sure. But whatever " instinct theory " we accept or dispute we can be quite sure that by the time the child comes to school he exhibits certain characteristics of mental and physical behaviour common to all children.

We are also sure that each child has a unique personality in spite of the common characteristics. It is as if, though the ingredients were the same, for some

McDougall's sense. (2) Allport, Gordon W., *Personality* (Constable and Co., Ltd., 1938).

reason (e.g. varying quantities or some external variation) the product is different.[1]

Child-behaviour is often predictable, especially if we have a knowledge of child psychology, and know well both the individuals concerned and the field, or external situation, in which the behaviour is to occur. It is not always completely and reliably predictable, for the factors at work are too many and too variable for the teacher to be sure which groups of influences will predominate at a given moment.

A child may refuse to tackle some problem presented to him. He may tackle it because he is curious. Or he may not be at all curious but he may tackle it because he wants to assert himself or acquire something. If he has tackled it because he is curious he may finish it even after he ceases to be curious because he has become self-assertive in relation to it. If he has tackled it because he wants to assert himself or acquire something he may in trying to solve it become curious.

Problems, both inside and outside the classroom, may precede a particular kind of behaviour, e.g. acquisitive, self-assertive, or curious, and give rise to it. Or the particular kind of behaviour (often with a definite purpose behind it) may precede problems and give rise to them. To take a simple example. A child collects stamps. His acquisitive behaviour in connection with his stamp collecting creates many problems for him to solve. He may in solving these problems need to behave self-assertively, pugnaciously, or gregariously, so that eventually he acquires the stamps. Any one kind of behaviour need not be obviously present in the

[1] Dr. MacGregor suggests a comparison with snowflakes; Dr. MacCracken with cake-making.

initial stages of solving the problem of how to get the stamps. It may appear later on.

It seems reasonable to postulate a *survival urge* behind problem-setting and problem-solving. The human being seeks a measure of stability and security. These contribute to survival. But to understand problem-solving and problem-setting we need to postulate also a *progress urge*, or *onward tendency*.

Most people are not content with mere survival; they are ever striving onwards and they are sometimes willing to sacrifice security, even to risk extinction, for the chance to progress or to " get on ".

Both *stability* and *plasticity* are necessary for survival; both are necessary for progress. But they must be well-balanced, well-adjusted. There are times when an excess of either would be disastrous. Either can endanger survival: either can prevent development.

These two urges—to survive and to progress—can be looked on as essential factors in the past evolution of the human being. They lie behind the development of all human characteristics of mind, personality, and character in each individual who reacts to his environment, physical and social.

We can imagine physical avoiding and seeking reactions evolving through the ages and becoming more or less permanent—some more, some less. They are observable in the very early life of the child, and they are intimately involved in educative processes of all kinds.

When a child is born he already possesses physical structures which at once come into play in certain avoidance and seeking reactions in response to certain physical stimuli. Very soon, however, we, as observers, are no longer satisfied to explain the child's behaviour

in terms of automatic physical reactions to physical stimuli. A combination of avoiding and seeking suggests *caution*. A preponderance of avoiding (e.g. shrinking, hiding) suggests *fear*; of seeking (e.g. grasping, exploring) *curiosity* and *adventure*. Gradually, almost imperceptibly, consciousness and later on self-consciousness have to be taken into account. The child still seeks and avoids, but we soon begin to think that when he does so he is, at least sometimes, at the same time curious or afraid, in fact, that his behaviour needs psychological as well as physical terms to describe it adequately. Consciousness appears and is followed by foresight and planning ahead; by conscious aims and ideals. Though man may still wander in blind alleys in the course of development he has now, through these more recently developed qualities, the power to take a deliberate part in the march onward whether it be onward to a fuller life or to destruction, complete or partial.

Our conscious efforts have still behind them, with or against them, the old evolutionary factors or processes which have been at work, before man appeared on the scene, from time immemorial even back to the infancy of the amœba and its predecessors. Our own nature and behaviour are still subject to the influence of "blind" evolution and its products. But now we have conscious aims, ideals and principles, as well, apparently, as a power to direct, to some extent at least, our future development. The germs of consciousness and of deliberate self-direction were presumably, on the evolutionary theory, present in the blinder processes of the earlier stage of man just as, presumably, they are present in the child before we can detect the signs.

The adult human being of to-day is conscious of a desire to survive and to develop further. Physical and mental avoiding and seeking reactions work together in him towards survival and further development. Sometimes he uses them deliberately for deliberately thought-out ends, sometimes they work " blindly ".

Survival demands that many problems must be solved. Man solves some of them automatically and without clear mental formulation of problem or possible solution. Others must be formulated thoughtfully and carefully, and a solution deliberately and persistently sought. Man does not, however, rest content with solving only those problems which he must solve in order to survive as an individual, or which he thinks must be solved if mankind is to survive. At a very early age he begins to go out of his way to seek or to make new problems for himself or for others to solve. Mere survival is not enough: change is essential even though by it survival is sometimes endangered. Plasticity must be maintained though its maintenance is not necessarily deliberate on the part of man. Deliberately directed change in a selected direction is nowadays often given the name " progress ". The term is generally applied to the behaviour of groups of people rather than to individuals, i.e. to social development, but individuals are sometimes called " progressive ". Not all who use the word give it the same meaning but the differences in meaning are often concerned with methods rather than with aims and ideals. It need hardly be added that aims and ideals for " progress " at present vary from individual to individual and from nation to nation.

Though we all seek, set and solve problems, and

avoid others, the choice of problem varies with our age, intelligence, individual interests, education and general environmental influences. Whatever branch of study or occupation we choose we find endless questions and problems. Science has sometimes been called "the organized answers to questions"; philosophy has been called "a system of questions which have not yet been answered"; even poetry, in the modern form at least, has been said to consist largely of questions which are not only unanswered but unanswerable.

Golf, tennis, cricket and indeed most games are constantly presenting new problems to the players. Detective and mystery stories, adventurous pursuits like exploration and big-game hunting are full of problems to be solved, questions to be answered.

Millions of people enthusiastically take part in brains-trusts, spelling-bees, quizzes, crosswords and jig-saw puzzles, conundrums, charades, clumps and countless other question and "guessing" games. It makes an interesting exercise to try to detect behind the present wireless craze for brains-trusts and quizzes some of the motive forces we have been discussing.

In view of the appeal of problems and questions, and the strength and importance of the motives behind their appeal one might advise the young teacher as follows:

> (1) Provide material which is important for your immediate purpose and for your general aims in education. Provide it and pursue its assimilation or investigation by the children in an atmosphere of security and stability (contributory factors to survival); but in such a way that there is scope for exploration and adventure (contributory factors to progress).

(2) Avoid lines where excessive resistance is likely to be met. Arrange the environment and the material so that the child is not too often thwarted but can often achieve something. Follow the lines of child interests and child nature. These are the lines of least resistance and the most promising. Make achievement rather than frustration the key-note.

(3) Remember that curiosity, self-assertion, spontaneous activity, exploration, constructiveness, pugnacity etc. are sources of energy which can readily be tapped in the service of education. Looked at in another way they are channels along which energy readily flows.

(4) Remember also, especially in connection with middle and later childhood, the more complicated, more highly developed mental forces like aims, ideals, ambitions, sense of values, special interests, love of social approval, the self-regarding and other sentiments, in fact those qualities which are the result of the interaction of environment and the " natural " child.

(5) Notice the interaction of the more primitive with the more highly developed qualities of the child, and how these lie behind the problems or tasks which he sets for himself, or attacks with vigour when they are set for him.

CHAPTER III

CHILDREN'S QUESTIONS IN CLASS

WHY do children ask so many questions outside the classroom and so few inside it?

It is only to be expected that a child coming to school should at first be rather overawed by the new surroundings, the buildings, the other children and the teachers.

The new environment is presenting him with so many interesting problems, and with the means of solving some of them, that there may be fewer spontaneous questions for a time. So many new experiences have to be absorbed and lived through, that specific questions may not at first emerge in words even if they are more or less formulated in his mind.

There is some evidence that inhibition of language is far more common at five years than at four.[1] The child is more critical and more uncertain of his own performance. In a clinical examination he needs more tactful commendation and encouragement by the examiner. In school he may be shy of the teacher and of the other children and reluctant to speak where so many people can hear. This is characteristic of some adolescents too. They are reserved and self-conscious and though they may be curious about many things they may prefer not to question adults or each other in public.

Another factor is that even in the nursery school or class the small child learns that he must to some extent

[1] See Gesell, A., *The First Five Years of Life* (Methuen), p. 207.

control and suppress his questionings and his demands on the time of the teacher who has many other children to deal with at the same time. He has come into a wider world than he has hitherto known, where he cannot have as much attention as he has had at home. Much as the teacher might like to encourage questions the size of classes in most schools makes her problem a very difficult one. However much she may wish to give children a chance to pursue their own curiosities she must discourage questions which do not fit in with her schemes. If she does not, either chaos is produced or little is learnt. She simply cannot cope with a large number, especially when she is new to the work. If she can control her class, keep it reasonably happily and usefully employed as a whole, she is doing as much as can be expected of her. To conduct a lesson satisfactorily with a large class on question-and-answer lines when the questions are of the teacher's own choosing is no mean accomplishment. It becomes very much harder when the children have freedom to question.

In a class of forty or fifty children, a good experienced teacher can find time for some individual work, and she can encourage the children at times to ask questions and bring their individual difficulties for solution.[1] Rarely, however, do we find an inexperienced teacher or a student-in-training able to cope with the obvious large-class difficulties so well that she can share the questioning satisfactorily with the class, though as her skill develops she can often deal with children's questions from one group, while other groups work independently.

[1] The cost to herself is, of course, too great.

So it happens that many children who are full to overflowing with questions outside lesson-hours rarely ask questions in class. The usual state of affairs with students is represented fairly by the following table. It should be remembered that the students concerned tended to adopt the methods pursued in the schools in which they were practising and to imitate the practice of experienced teachers whom they observed. Their methods also reflected the teaching they themselves had in their school days. The table shows the number of questions asked, (*a*) by the student, and (*b*) by the class, in the case of twelve different students observed consecutively during the ordinary course of school practice.

Duration of lesson.	Subject.	(*a*) Number of questions asked by student.	(*b*) [1] Number of questions asked by class.
35 minutes	Geography	56	2
40 ,,	Arithmetic	84	0
40 ,,	Reading	23	0
40 ,,	Nature study	55	3 [2]
25 ,,	Drama	7	0
40 ,,	Geometry	57	3
30 ,,	Physics	35	5
25 ,,	Algebra	24	1
35 ,,	Science	47	0
35 ,,	Music	42	1
40 ,,	English	20	0

[1] This column does not include such questions as "May I sharpen my pencil, please?".

[2] In one of these lessons the teacher and children looked at a crab. The teacher talked about its stalked eyes and about the shedding of the shell. At the end of the lesson the class was asked if there were any questions and one child asked: "How can the crab see when the shell comes off?". She had got the impression that the eyes came off with the shell. Her question was a very useful one to the teacher.

Even when we make allowances for shyness, moods, stages of development of the children, large classes, inexperienced teachers and experienced teachers trying to cope with difficult conditions, there remains reason for dissatisfaction with such uneven distribution of questions between the young teacher and children as we so often find in the classroom and illustrated by the table given above. The ordinary teacher who is neither brilliant nor inefficient could, if she tried, adopt methods which would give the children in her charge more freedom to ask and to answer questions of their own choosing. Children definitely ask too few questions.

The young teacher might with advantage to her teaching occasionally re-read a certain scene in *Back to Methuselah* [1] in which a bewildered Elderly Gentleman of about sixty arrives on a pier on the coast of Galway in the year A.D. 3000 and converses in turn with several of the inhabitants of the island. A woman aged at least one hundred and fifty finds him on the pier and asks him question after question till discouragement sets in and he threatens to drown himself. A man aged ninety-four arrives and tries to help him, but he too asks discouraging and distressing questions.

At last when the elderly gentleman uses the phrase "a civilized country", and is asked what it means, he becomes desperate and exclaims: "I—I—I—I shall go mad if you keep on asking me to tell you things that everybody knows".

Finally he is handed over to Zoo, "a girl of fifty and rather childish at that". This is a very satisfactory arrangement. He recovers rapidly and has "a

[1] Part IV, Act 1, *Back to Methuselah*, Bernard Shaw.

sense of blossoming like a flower". But towards the end of a long and interesting conversation they quarrel, and she gives him a piece of advice which many a teacher might give to many a child. The dialogue runs as follows. The last sentence should be specially noted and passed on to the class when possible.

Zoo. "Hav'nt you noticed that all the time you have been here we have been asking you questions?"

The Elderly Gentleman. "Noticed it! It has almost driven me mad. Do you see my white hair? It was hardly grey when I landed: there were patches of its original auburn still distinctly discernible."

Zoo. "That is one of the symptoms of discouragement. But have you noticed something much more important to yourself: that is, that you have never asked us any questions, although we know so much more than you do?"

. . . . .

Zoo. ". . . You'd better ask me questions while you have the chance."

Normally when the teacher walks into the classroom and stands before the class the questioning attitude arises immediately though many of the questions are not put into words. The children, or some of them, look at her enquiringly. What is she going to say? What is going to happen? What is the lesson going to be?

Often too the lesson ends in questions. It may be only "What is the homework?" or "What are we going to do next day?" Or it may be a question which

ought to make a teacher feel well pleased, for example, one asking for specific information which she has already planned to give the class next time. Then indeed she may feel encouraged, for the coming lesson has had a good introduction.

All through the lesson period vocal or silent questions are constantly being formed by the children. Whether these questions can be classed as good ones or not they should be welcomed as a sign of a healthy class. The time taken to answer bad questions with good answers is well-spent. Usually, whether they are good or bad questions they can be usefully and quickly answered by a good teacher. Moreover she can learn a good deal from them. They indicate the way and direction in which the child's mind is working at the moment, his interests, problems, misunderstandings. They reveal individual differences between different members of the class in ability, interests and character. They give the teacher a chance to estimate the results and value of her work and to see how far she is succeeding in her aim in a particular lesson or in general. They may suggest promising lines for future procedure and give ideas for the remedy of faulty methods.

Questions are for the child a natural and enjoyable means of intellectual and social growth. They form a channel for social relationships and help the child to establish contact with others. The teacher should therefore provide plenty of opportunities for the children to discuss and ask questions privately amongst themselves in addition to questioning the staff. Questions provide an outlet for energy and are a means of self-expression, and they are of course useful to anyone who wants to know something.

A thoughtful teacher will see many other purposes to which the question may be put. She will realize for example the advantage to a child later in life of having had practice in asking his own questions or answering other children's questions in public in a confident and acceptable manner; in forming the question; in finding the right words so that he is understood by others; in putting it satisfactorily; and in discussing it reasonably and amicably with others. So questions should be welcomed.

But these occasional questions from the children are not enough. They are few and asked by relatively few children in a large class. The few children who ask them are likely to get an unfair amount of attention. One persistent questioner can spoil a lesson for the rest of the class. Children are often unexpectedly silent in the classroom. Sometimes they are overawed, or suppressed, or shy, or bored. Sometimes there are other reasons. These children can be encouraged or temporarily left alone as the teacher thinks best in special cases. In general, however, the teacher ought to do more. Not only should she welcome spontaneous questions from the children wherever they come in the lesson but she should also plan for questions to be asked.

It is sometimes useful to have a pre-arranged question time. This can be a few minutes at the end of the lesson or a full lesson period can occasionally be assigned for children's questions and answers. Sometimes the children provide enough questions spontaneously when this is done, but it is wiser for the teacher to plan her procedure beforehand. Questions can be collected the day before in a box or in a book or simply on slips handed in by the children—signed or anony-

mous. Sometimes a special topic can be chosen: sometimes children should ask questions about " anything of interest ".

Experienced teachers have their own methods of conducting such periods. A very successful teacher of English literature, for example, habitually used any spare minutes in class (usually at the end of the period) to supplement a restricted and rather unsatisfactory syllabus to which she had to work.

The questions could be about any topic in English literature. They might ask for the name of the author of any fairly well known poem, novel, piece of prose, or for a quotation from a work by any well known writer, or on a special topic. Sometimes she asked questions herself. This proved to be highly stimulating treatment for adolescent girls, and several generations of girls laid up, in a background of interest and enjoyment, a store of interesting starting points for future reading.

Even a revision lesson may take on a new interest if each child prepares a question to be put to the rest of the class. When necessary the teacher can arrange the procedure by announcing the topic, receiving the questions, looking through them and marking those which are to be put in a given lesson as well as arranging the order in which they are to be given. She can interpolate a question of her own if this is required to make a useful series.

Most children enjoy a question-and-answer battle or competition, and a good deal of revision can be done in this way. B.B.C. programmes provide many and varied ideas for competitions, games, quizzes and " bees ".

The class can be divided into two sections. A child

from one section asks a question. If the opponents are unable to answer correctly the other side gains a point provided it can give the answer. Every child should have a chance to ask a question and to answer one. Those who need it can have help beforehand by the teacher or by other children.

Games can be devised for small children. One child can sit in the middle of a circle made by the others and try to answer questions. When he misses he vacates the centre in favour of the child who put the question. The teacher acts as referee where the children cannot do this themselves.

Management of a discussion or question-and-answer lesson.

Informal discussion might start from a statement made by the teacher or from a question put by her or a pupil; from a piece of news from the morning paper or a wireless announcement or talk, such as the breaking of a record, an election at home or abroad, the reward of the Nobel Prize or an international conference. Children should be encouraged to discuss such topics in class, to exchange opinions, to ask each other questions, They are then more likely to take an interest in them outside.

Topics of this kind readily lead to a lively discussion of facts of science, history, geography, literature and other subjects in relation to what is happening all round the children in the outside world. To neglect such occurrences is to miss a great opportunity.

If we watch a discussion or question-and-answer lesson under the direction of a good experienced teacher it looks easy enough. It moves along its appointed path without a hitch. Many of the possible difficulties are

avoided and those which do arise are overcome without apparent effort. The student who tries to give a similar lesson very often finds that she has not been able to foresee and guard against all the difficulties, and that those which arise are hard to deal with. Even when she manages to avoid the grosser forms of disorder and confusion she wastes a good deal of time and energy. She is then inclined to restrict her experiments in this direction or, unfortunately, to abandon them altogether because she is afraid of not being able to cope with troublesome situations which are bound to arise. It is easier to get children to ask questions and to discuss freely than to manage them, when they do so.

The inexperienced teacher must not be too much discouraged if class management proves difficult in a large class. At one time the class will become intensely interested and orderly, and at another it will arouse the greatest discouragement by its behaviour. A few failures may discourage the student badly, for she, like the child, tends to seek repetition of pleasurable activities and to avoid those which have in the past been disagreeable—unless of course some other factor comes into play, say self-assertiveness, or pugnacity, or the self-regarding sentiment, or some other sentiment or ideal. Experience, courage and intelligent thoughtful practice are the secrets of success. Also real keenness of interest in conveying knowledge and drawing out the children.

In a very small class free discussion and questions from the children occur naturally and are often a delight to teacher and children. Discussion in moderately sized classes needs more skill on the part of the teacher if

all the children are to take part in an orderly manner. It is in classes of this size that the beginner best gets a chance to practise group-discussion and to try out her ideas on the subject.

The success of the discussion from a wide general educational point of view depends on the level of education, experience, sympathetic understanding and culture of the teacher. But even the young and inexperienced can do a great deal to widen the children's outlook, and she will find herself stimulated to increase and deepen her own experience outside school life. A young specialist in a subject naturally tends to confine herself to some extent to realms in which she feels most at home. She can easily use such periods either to break new ground in her subject or to develop, supplement or revise topics already dealt with in her lessons. Better still, she can relate her own subject to other school subjects, and to events in the children's out-of-school life.

A poorly prepared teacher learns to dread questions from the class but a well-prepared one can more safely encourage them. Some attempt to organize discussions and allow questions should be made from time to time even when the class is large, though the attempt may only prove that this is at present beyond the teacher's power. Undismayed she should return again and again to the attempt, each time encouraged by noticing some advance in her skill in this fundamental matter of question and answer.

CHAPTER IV

MAKING THE QUESTION

THE student should certainly prepare some of her most important questions beforehand. Even if she does not use them exactly as she has prepared them she will find that by working over her material and formulating questions she provides herself with a good foundation on which her native wit may operate when the time comes. Besides, after preparing them she should feel more confident. She has revised her subject-matter, and has a plan, so nothing seriously disturbing need be anticipated.

The reception accorded to a given question or a given piece of information may alter her plan considerably. She should be adaptable in class and yet pursue her aim. She has her plan as basis and she can allow more spontaneity than if she were feeling her way without a well-thought-out foundation.

An unexpected question, or a little series of questions, often crops up in teaching and is often stimulating to teacher and class. But inspiration in class-work, though stimulating when it occurs, is fickle. It does not come to order and it seems to favour those who trust it least. In any case ingenious ideas break forth more readily from a background of considerable thought.

Where a connected series of questions is to lead up to a conclusion it is too much to expect to be able to arrange the series properly on the spur of the moment

so that each answer is connected with the others and seen in relation to the whole. Prepared questions are more likely to ask simply and effectively for what is wanted than are unprepared ones. They are more likely to be suitable for the given class, and to be well-formed—in fact, more likely to be good questions.

The following hints may help the beginner:

1. Get a clear idea of your aim in this particular lesson, decide on the subject-matter you mean to use, call to mind your class and its familiarity with the topic you intend to deal with.

2. Think over the probable course of the lesson. Imagine yourself giving it. Mentally go over the ground you mean to cover. Decide whether or not it is a lesson in which questioning must play an important part. Remember that some things are more enjoyable and more interesting if told than if reached laboriously by questions and answers.

The place and number of questions should depend on the kind of lesson. The place of course is where they can serve a useful purpose.

A good lesson is often a well-thought-out combination of different methods, e.g. questioning, study, discussion, experiment, lecture, exposition, narration, dramatization, drill, expression in writing or drawing, revision. Some lessons may be mainly of one or another kind depending on the aim. In some lessons few questions are desirable, in others many. Some parts of the lesson may need many, some parts may need none. Make up your mind on this question.

3. If you decide that pivotal questions are advisable at definite points in your lesson, plan these carefully.

The plan of the lesson suggests the main lines and certain facts or ideas stand out as important. Note these down. They are the answers you need from the class. Form questions to which these ideas are the answer. That is, you should first know what you want and then make questions which you think will get it.

Half a dozen well-thought-out and well-arranged questions distributed through the lesson should ensure that energy is being directed towards your aim. They should prevent wandering too far from the point; they should lead the lesson from point to point in an orderly way; they should stress and link up the important ideas. Such a series of questions should give an invaluable feeling of confidence. The teacher who is anxious about the next step in the lesson and about the next question is at a great disadvantage.

4. Decide whether or not there are any points in the lesson at which short series of prepared questions would help you. The pivotal questions will emphasize the main points of the lesson. Short series may be useful at points where you anticipate difficulty of any kind, e.g. where the reasoning is involved, or where you do not feel completely at home with your subject. Even fairly well known facts have a way of becoming elusive in an unfamiliar or trying situation.

5. Ask yourself if there are any individuals in the class for whom it would be useful to prepare one or two suitable questions. The requirements of the class must come first. Long pauses, for example, while a slow child gives a halting answer would be wrong, but a simple easy question may help a slow child immensely without keeping the class back if the teacher has kept him in mind when planning questions.

6. Ask yourself if there are any special questions to be prepared for some other specific purpose. This category includes catch questions, or questions which we know the children cannot answer but which we may use occasionally to give variety, or to arouse interest and curiosity in some particular direction. It includes questions to set the class thinking in preparation for some future work we have in mind; to make a problem felt and to create an interest in its solution; to promote class discussion; to draw the attention of a careless pupil to his carelessness.

"Catch" questions are useful occasionally. Now and again the teacher may want to "catch the class out" or "pull it up" to a realization of some fact or other, but she should do it in a friendly spirit and with a reason which the class can appreciate. She might, for example, in an arithmetic lesson, wish to demonstrate the necessity for independent thought. To do so she might give a sum such as this: "The temperature in April thirty years ago was 46°, twenty years ago it was 42°. What was the temperature in April five years ago?" If she found, as E. J. G. Bradford [1] found, that 78 per cent. of the children to whom the sum was given worked it without realizing their foolishness, she could make use of the results to encourage the class to be more alert in future, and not to assume such an absurdity as that one year's weather is directly dependent on that of another year.

7. When you have prepared your questions, try them out. Some students put them to themselves and try to find excusable "wrong" answers for them. Others try them on their young brothers and sisters.

[1] The *Forum of Education*, Vol. III, 1 Feb., 1925, "Suggestion, Reasoning and Arithmetic", pp. 6–7.

Occasionally choose a question you intend to give and ask yourself questions about it, questions such as these:

What is my aim in asking this question?
Is it really necessary—or useful?
Does the answer I hope for lead the lesson forward and help me to achieve my aim?
Are other answers likely or possible?
Is the question attractive, interesting, relevant?
Is it suitable for the class?
Will the children understand it?
Can I improve it?
Can the children answer it?
Can I answer it myself?

That this final question is not always an unnecessary one is illustrated by the case of a student who had taken a good deal of trouble with an examination lesson. The subject was "Income Tax". She had procured income-tax forms from the tax office and the lesson began well. All eyes were on the blackboard as she worked a sum from the text-book. She had aroused the interest of the children in the amount of income tax the man concerned would be asked to pay. Unfortunately her blackboard answer and the text-book answer did not agree. After a great deal of confusion and some embarrassment she discovered that she had forgotten to take into account the income allowance for the man's wife. The lesson was spoiled because as she explained afterwards she had never before worked out a question like this though she understood perfectly well how it ought to be done.

8. *After* the lesson is over think about your questions. Ask yourself some such questions as these:

> How far did my questions succeed in their aim?
> How did they affect the lesson?
> Why were some unsuccessful?
> Why did some get unexpected answers?
> Why had some to be abandoned or modified?
> In view of my aim, did I over-question or under-question?
> What alterations should I make if I were repeating this lesson with a similar class?

Such self-questioning is often a help in locating outstanding faults. By concentrating on one or two of these at a time it is possible to become confident and expert. The penalties for neglect of preparation are usually time lost, patience tried, attention distracted, children muddled and the teacher discouraged without knowing exactly why she has failed.

Practice, experience, observation, experiment and thought all help to make a good questioner. During the lesson there is little time for thought. Attention must be given to other matters and to the putting of questions rather than to the making of them. We cannot stop long enough to look for reasons for success or failure, to recast questions which have failed or to make sure we are not omitting necessary facts nor stressing unimportant ones, putting questions or accepting answers which are taking the lesson off at a tangent. Difficulties can be anticipated and possible solutions formulated in advance.

9. Prepare test or examination questions when preparing your material for presentation to the class.

Failing this, go over your lesson notes when you come to set the examination questions. This makes it more likely that you will choose the important or the difficult points. The habit of noting down questions suitable for future tests has the additional advantage that it lightens the labour of setting the test when the time comes. This is particularly true when the tests come only once a term or once a year and the questions must be chosen from an extensive field.

10. Observe experienced teachers when you have the opportunity. Note the use they make of questioning. If you know beforehand the topic of the lesson you are going to observe, plan how you yourself would tackle it and what questions you would use. Then compare your plan with that which is actually used by the teacher.

11. Finally, always keep an eye on your *aim*, and remember, with reference to this aim, the possible uses and misuses of questions.

When is a question a good one? The answer: when it is likely to fulfil the purpose for which it is put, implies that certain kinds of questions which have often in the past been frowned upon may really be good questions. Amongst these are questions which are too hard for the children to answer, or too easy for them, or can be answered by a "yes" or a "no", or are suggestive, or elliptical. Like any other question in the classroom these kinds are good or bad according to the circumstances of their occurrence. All of them have a place in good teaching. Suggestive questions are referred to elsewhere.[1] Let us consider briefly the other kinds mentioned above.

[1] This book, pp. 67–69.

Questions which can be answered correctly by a "Yes" or a "No".

The main reasons why such questions are sometimes unsatisfactory are these. The child has as much chance of being right as of being wrong if he simply guesses: his answers give no training in connected speech, and the questions may give him too little work to do. The answers do not necessarily indicate thought on the child's part, and sometimes they deceive the teacher into thinking the pupils are taking an active part in the lesson when in reality the response may be almost automatic. The sensible point of view to adopt is that "Yes" or "No" questions and answers are good if desirable aims are achieved or furthered. The test is "Has my question achieved any useful purpose?" Obviously "Yes" or "No" is a satisfactory answer to a question like "Have you read this chapter?" or "Is anybody absent to-day?".

In many cases where the answer is "Yes" or "No" another question should follow, for example one which asks "Why" or "How" or asks for some evidence in support of the "Yes" or "No".

The following example illustrates the necessity to follow up a "Yes" or "No" answer, and the futility of relying on the class chorus of "Yes". The teacher had explained a method of converting degrees Fahrenheit into degrees Centigrade. Several examples had been worked on the board. She asked "Now, do you all understand?", and got a chorus of "Yes". She was about to accept this assurance but suddenly decided to put it to the test. She asked the class to convert 45 degrees Fahrenheit into degrees Centigrade. The

children worked eagerly and soon half the class had finished the calculation. The teacher collected the results and wrote them down on the blackboard. They read, in degrees Centigrade, as follows: 113, 113, $7\frac{2}{5}$, 23·2, 25, 29, 7·2, 81, 8·3, $6\frac{3}{8}$, 4·5. Obviously, in spite of their "Yes" some of the children did not understand.

In this case the question which revealed the unsatisfactory state of affairs was an impromptu one, and a good one. It was a mistake, however, to leave a decision like this to chance. In preparing a lesson the teacher should plan to give some test questions to ensure understanding and to practise the use of the new knowledge. The class is not always a good judge of the extent to which it understands, nor what, nor why it does not understand. It is essential for the teacher to ask test questions and from the answers to judge for herself.

Questions which can be answered by a "Yes" or a "No" are often useful as interest-getters, or to recall wandering attention without breaking the thread of the lesson. "Mary, do you see that?" or "Tommy, do you think that was a sensible thing to do?" may make Mary or Tommy take a new interest in the work after giving the simple one-word answer. Such questions are useful also for emphasis and revision.

Elliptical questions.

These give the child the framework into which a word or phrase has to be fitted. Part of the answer is given and the child supplies the rest. Objections are sometimes raised to such questions on the ground that they are too easy, that the teacher gives too much of the

answer, that they do not ask for sentence formation, and that they are tiresome when they are used too often. There is some truth in these objections, but not enough to condemn such questions entirely. It is true that they do not require the child to make sentences, but no good teacher nowadays requires complete answers to her questions except on special occasions for some special purpose. Sometimes a timid child will not tackle a question alone but will complete an answer if the teacher starts it for him. Sometimes a dull child cannot attend to more than one thing at a time and it is a help if he is provided with a ready-made form in which to present the required matter. Even a bright child can be encouraged in this way with unfamiliar or difficult work. It is not always true, however, that questions in elliptical form are easier than they would be in another form. So far as the correct naming of the capital of Russia, for example, is concerned, "The capital of Russia is —— what?" is no easier to answer than "What is the capital of Russia?" It requires exactly the same knowledge and skill. If elliptical questions are not over-worked they can be very useful, and they help to give variety in the classroom.

Easy and difficult questions.

Easy and difficult questions have their uses and their dangers. Easy questions may encourage children, and difficult ones may make them think. But they must be used with discretion if they are to have these effects. If they are too easy the children may lose interest, and boredom or indifference may set in. Often success is sweeter when it follows a good deal of effort, and puzzlement is often a spur. If they are too hard they may fail

to arouse or to hold interest, they may be boring, tiring, worrying or discouraging. They may merely meet indifference, they may cause distaste for a subject or they may drive children to find some easier if less legitimate activity. As an example of a difficult question which might have a stimulating effect on a young teacher we might take the question, " Do most teachers ask questions which are too difficult? ". She might simply say, " I don't know ", or she might say, " So far as my limited experience goes I think . . ." She might be stimulated to think about the matter. An easier question would be, " Do you, yourself, tend to ask questions which are too difficult for your class? " She has a chance of being able to answer the question and it might stimulate her to thought and self-observation.

Some of the most provocative and stimulating questions in life for many adults are so far unanswerable, e.g. the origin, purpose and goal of life. For that very reason man is driven to investigations about himself and nature, as well as to literature, poetry and religion, research and discussion.

Unanswerable questions can make children as well as adults curious or interested, or aware of difficulties. In later school life children are often stimulated to pursue enquiries by the same questions which their elders are asking without reaching any universally acceptable answers. Apart from these unanswerable questions many other questions are beyond the child's power to answer because he has not yet acquired the knowledge though it is obtainable, as, for example, the question " In whose reign did Shakespeare live? " It is an easily understandable question and easily answered if

the fact has already been learnt. Otherwise it is difficult.

Another kind of question which children often find difficult is that which does not tell them clearly what is wanted. The question may be so badly formed that the children are genuinely puzzled to know what the teacher is driving at, even when they know the answer to the question she is trying to put. Sometimes questions are difficult because they are beyond the children's powers of reasoning, or selection of material, or expression. "Give an account of ——" is sometimes a very hard task because it involves selection of facts, organization of them and expression. To combine all these is not always easy. A teacher may be quite unaware of the fact that a question is difficult until after she has asked it, met with a poor response and tried to answer it herself. Here is an example.

A student in training was taking a lesson with a class of nine-year-old children. She asked, "Who can tell me what *where* means?" The children seemed to find this a striking question. They all appeared to be thinking hard. The student was pre-occupied with something that was happening at the back of the room and, not having anticipated any difficulty, she was surprised at the silence. Then one hand went up. "Yes?" said the student encouragingly. "*Where* has the boy gone?" answered the child. "That's not a meaning, that's a sentence." said the student with some irritation. Then, slowly and thoughtfully, as she realized the difficulty, she added, "Well, it is rather hard to give a meaning. Let's have some more sentences." She had learnt something herself in that lesson.

" *How* did you do that? " is often a difficult question. When tempted to ask it we should remind ourselves of the sad tale of the centipede.

> The centipede was happy quite
> Until a toad in fun
> Said, " Pray, which leg goes after which? "
> That worked her mind to such a pitch,
> She lay distracted in a ditch
> Considering how to run.[1]

" *Why* do you not understand?" is an unsatisfactory question. If the true answer is " Because I was not listening ", or " Because you did not explain properly ", the child is unlikely to give it. And if the true answer is something deeper the child probably does not know it. The question is too difficult. But if we merely wish to make a sympathetic comment it is permissible just as one might say, " Well! What's the matter? Can I help you? "

Composite questions are difficult. The B.B.C.[2] often provides material for the study of *how not to* as well as *how to* ask and answer questions. In quizzes, composite questions have often to be split up into simpler parts even when the victim knows the answers. One question, for example, which had to be split up into many component parts by the question-master before it was answered ran something like this: " Who wrote ' The curfew tolls the knell of parting day ', where did he write it, and who said he would rather have written it than done what? " Such a question is permissible of course as a joke, or to show the unfortunate victim from

[1] By Mrs. Edward Craster: see Bartlett, *Familiar Quotations* (Macmillan).

[2] This is not nearly so true now (1955) as when this criticism was first written.

the beginning what he is up against, but it is to be avoided as a rule in the classroom, except for amusement or as an interest-getter by shock. A question which contains more than one interrogative often meets with disaster even with older pupils. It may be easy to understand and the child may know the necessary facts and yet it may fail. The child may not know where to begin, or he may forget the beginning of the question before the end is reached.

The present writer once saw a student learn a valuable lesson when she asked a complex composite question. One hand went up and a worried voice said, " Please, would you mind repeating the question? " The student was quite unable to repeat it in the original form and very wisely made separate questions of the parts.

When a series of questions is put to a class, as in a class test for example, one of two easy ones should start the series to give it a good send-off.

CHAPTER V

PUTTING THE QUESTION

THE teacher's manner of questioning is important. A bullying, threatening or scolding manner is a sign of weakness. Most classes can be controlled through fear or discomfort but such an atmosphere is bad for clear thought and good work. It is also bad for the child's general development.

If a teacher really got in answer to the question, "Who signed Magna Charta?" the frightened reply, "Please, sir, it wasn't me", he would have done better to conceal the fact. The discredit was his, not the child's.

Here is an incident from a real lesson which illustrates the same point.

The student was giving a lesson on seeds. She began with the question, "How many of you know what a poppy head is like?" There was no response. The lesson then proceeded as follows:

"You've all seen a poppy head. Haven't you? What is it like?" impatiently and accusingly.

The children began to look guilty but maintained an honest silence.

"Is there anyone who hasn't seen a poppy head?" firmly and sternly. The children stealthily glanced round at one another. Then one brave girl held up her hand. Others saw her and one by one more than a dozen hands crept up. The children either had not

seen poppy heads or were not sure. The student looked surprised but found two poppy heads in a paper carrier she had brought. These she gave to the class, one to each side of the room. After a few seconds when only a small part of the class could have caught more than a glimpse of the specimens she said to the forty children, " You've all seen a poppy head now. Let's get on with the lesson."

Children should feel at ease with the teacher so long as they are trying to do their work. Both teacher and children gain much by pleasant relationships in school.

Pleasantness in a teacher does not necessarily indicate slackness or inefficiency, and unpleasant teachers are usually those who for some reason lack confidence in themselves or are in some other respect inefficient. A teacher with a definite aim and purpose is more able to keep control of her class pleasantly and firmly than one without.

Firmness, with flexibility, responsiveness and adaptability are valuable assets.

Occasional unpleasantness from a teacher who is usually pleasant is very effective!

To have its full effect a well-prepared, well-put question should fall on suitable ground. Usually the children's minds become prepared in the normal course of the lesson, but the teacher sometimes finds it necessary to prepare the ground deliberately.

A simple case will illustrate the necessity for considering the ground from the emotional and the conative aspects as well as from the intellectual. A lesson was being given to a class of eleven-year-old children on seed-dispersal.

The student rapidly revised the three methods already

known to the children, dispersal by wind, by water and by animals. Thus she called up relevant ideas as a background to receive the question she intended to ask, and by the light of which the children could try to answer certain questions. In fact the intellectual preparation was quite well done. Then she asked, "Is there any other method?" The question was apathetically received. Nobody cared. There was no spur to effort, no driving force of will or feeling. A suitable mood or attitude had not been created in the mind of the child. But the urge to answer was unwittingly provided by the student in her next comment. "Well, there *is* another method and I thought you might have guessed it, but as you can't, I suppose I shall have to tell you." There was no reproach in her tone; she was merely stating a fact, but the class was instantly stimulated to real effort and began a vigorous search for the answer. The gap in their knowledge, which they previously *knew* to exist, now became *felt* as a gap which they desired to fill in for themselves. Probably the innocent comment of the teacher had stung into action some such forces as self-assertion, curiosity and pugnacity. A lively discussion ensued in which the children revised known facts, applied previous knowledge and really did some hard thinking. They found, however, that they could not fill the provocative gap. But the discussion served as an excellent preparation for the time when the teacher eventually did give the information. The children listened with great interest to her description of splitting and dehiscence as illustrated by the familiar pea and broom, and one child remembered having heard in her garden in August, periodical sharp short crackings, which she

thought might have been the dehiscence of the broom, and the class decided to investigate the matter next summer.

Then they set themselves with great energy to make a table with four headings under which they filled in appropriate examples of different kinds of seed dispersal. This student had created and maintained an atmosphere in which the children were ready to receive the question and although unable to answer it they were keen to take part in discussion in search of the answer.

A class is very sensitive to changes in the teacher's manner. In questioning, some teachers excel in fitting their manner to the requirements of the moment. Others, at the other extreme, have one manner which says clearly, "I—am—the—teacher—you—are—the—children. Answer me this if you can!"

As an example of how she may vary her manner the student might usefully try the effect of a crisp staccato manner and tone in a series of rapid drill questions or revision work where the aim is primarily to ensure mastery of facts or to stimulate the class to alertness, and she might also try the effect of a more deliberate, calm, thoughtful manner of questioning when her series of questions is meant to develop some line of reasoning, and more time and thought are necessary to produce answers.

Some teachers do this sort of thing without thinking about it; most need to think about it and to practise it deliberately.

The ground prepared and the question ready, to whom should it be put?

It was once customary for the teacher to ask questions

round the class in order. Occasionally nowadays this procedure makes an interesting change, but as a rule it is better to scatter the questions about, not asking the children in regular order. Interest is kept up, and there is no temptation for a child to learn up only certain parts of the work knowing that these are the parts likely to fall to his lot.

We should aim at variety and try to make our procedure fit the special occasion.

We may sometimes put the question to an individual in the first instance. To preface the question by a child's name ensures that his attention is expressly directed to it. He may have made a mistake in former work and the question may be for remedial purposes, or the class as a whole may be interested in the work and he alone needs some particular encouragement. The interest of the class need not be lost, especially if they know from experience that they may be called on at any moment to help. Also they are often curious to hear what the teacher has to say when she addresses herself specifically to an individual.

It is perhaps more usual to state the question to the whole class and afterwards, when all have thought about it, to ask one child to answer. Other children can then be asked to repeat, modify or supplement the answer.

Make the question fit the child as far as possible. To do this well one must know the individuals, and this knowledge must vary inversely with the size of the class. Even in a large class, however, one can discriminate between children who are content to sit reasonably still and say nothing even when they know, those who are willing to answer whether they know or not, those who

are dull or lazy, or bright and active, or day-dreamers or wool-gatherers, those who can be trusted to make the most of opportunities for self-assertion and self-expression, and those who need encouragement to turn their attention outwards, to exert themselves, to be interested in what is going on around them.

The more difficult questions can be given most often to the brighter and more lively children, and the less difficult to the weaker members of the class, to encourage all to continued effort. The child who likes to answer but is seldom right can be given easy questions and those which require short answers.

Some study of individuals and some thought as to the most suitable treatment is repaid by the confidence the teacher gains in her own progress, though some discouragement through the immensity of the task is bound to be felt by any conscientious student.

The question sometimes arises, "Should one try to get shy, silent children to talk in class by asking them questions and pressing them for answers?" There are so many possible reasons for a child's persistent silence in class that it would be unwise to treat all cases alike. The cause should be sought unobtrusively, and various remedies tried. But apparent failure may be met, for though many cases of this kind respond easily to sympathetic treatment, a few do not. Sometimes time and masterly inaction are all that are required.

Generally speaking, it is useful to try to draw such a child out of himself, carefully and gradually, without focusing the attention of the rest of the class on him, as this would probably embarrass him and add to his shyness or stubbornness. He may be led to feel an interest in some particular form of activity which can be

extended later. If ignored entirely, he may become more difficult; retire still further into himself, or suffer from a sense of neglect.

If lack of self-confidence is the trouble he may improve as he finds that he can answer questions correctly, do tasks reasonably well and gain a word or two of praise (but not too many) from the teacher, and that though no fuss is made if he doesn't answer, it is taken for granted that he will answer if he can. The questions and tasks given to him should be carefully selected by the teacher.

If his lack of response is due to some misunderstanding or to a feeling of injustice, frank discussion *may* be possible, with explanations and perhaps reparation. Children vary so much that individual cases must be considered separately. Some adolescent children, for example, seem to suffer little or not at all through self-consciousness while others like to remain, at times at least, in the background. It is unwise, even cruel, to make conspicuous in class-activities an adolescent boy who is acutely conscious that his feet and hands have grown enormously; whose general clumsiness makes him behave like a bull in a china shop when he moves about, and who cannot trust his own voice not to let him down at any moment by suddenly squeaking out of control. So too with the adolescent girl who is not yet accustomed to the feeling of "growing up" and is afraid of "making a fool of herself" by unaccountable and uncontrollable blushes, stammerings or even by tears.

Another occasion when the teacher should look carefully for the cause and act accordingly, is when a child who has been giving satisfaction unexpectedly "goes off" in any part of his work. This may occur

at any age. It may be due to illness, fatigue, discouragement, insecurity of back work or laziness, and as a rule some remedy for these can be found. But an additional possibility, which the teacher must learn to expect, is that the child has reached a so-called "plateau of despond".

The plateau is the child's: the teacher usually claims the despondency. Actually it may be the child's as well. We are all subject to plateaux in our work and learning; we stick; we cannot get on; to our jaundiced view we seem to have gone backwards. We are not tired, nor bored, nor unwilling to make an effort. The desire is there but we make no progress. Probably unconscious processes are going on: absorption, rearrangement, consolidation of ideas and such-like. The plateau may be a necessary stage in development and should be regarded without despondency. So if no clear cause for temporarily arrested progress emerges, the teacher can at least refrain from worrying herself and the child too persistently, taking comfort in the thought that such plateaux occur sometimes as the forerunners of big advances.

When the question has been put it should be left alone with the class long enough for the children to think of an answer.

This is a simple enough suggestion, but it is quite common to hear a question asked and then withdrawn or partly withdrawn, or followed up immediately by two or three more questions, or modified, or added to, or repeated, or reworded, or explained. This is usually due to the teacher's insufficient preparation of the lesson or to muddle-mindedness. It tends to confuse the children and should be avoided.

If the original question is followed up immediately by several others, which one is the child to answer? It is not surprising if he answers none. If the question is hedged round with explanations it is often hard to see where the question begins and the explanations end, or the explanations may practically supply the answer and take away half the pleasure of answering. At times a difficult or obscure question gains by being repeated, but too frequent repetitions become tiresome and the children may learn to depend on having several chances to listen whereas they should learn to listen the first time.

Modification of the form of the question is confusing if the child has already begun to think out the answer to the question in its original form. In modern languages, for example, he may quite justifiably be perturbed at having to abandon an embryo answer and begin all over again to construct an answer to suit the new form.

The student who finds herself getting into the habit of modifying her questions because they turn out to be not quite suitable when put, should not be in too great a hurry to modify them. If they get no answer at all, then obviously something must be done, and she may decide to make another attempt, but if answers do come, though they may be "bad", a study of them ought to help her to find the faults in her questioning and to improve her questions in future.

If, after being put, the question is modified, then the modified form should be put finally as clearly and concisely as possible, and probably should be repeated so that there is no doubt in the children's minds as to what form the question has finally taken.

A badly constructed question can sometimes be

cancelled by saying, "Well, let me put it in another way", before a second version is attempted.

But even well-prepared questions may fail to achieve their aim. It is only after they have been put that they can be fully assessed.

The particular situation and its needs must then be the teacher's guide in her choice of procedure. Perhaps the experience and information necessary to answer the question are lacking. If so, it is sheer waste of time to wait in the hope of a miracle. If it is considered desirable, the information may be given directly by the teacher without more ado, or she may set the class to work with text-books or other apparatus necessary to gain the required information. It may be better to leave the question unanswered for the time being or to lead up to it gradually by a series of easier stages. In the latter case when the answer is eventually reached through answers to intermediate questions, the original question should be put again and answered clearly by the children at least once more for the sake of emphasis and clarity.

The answers to *teaching* questions as contrasted with those that aim at *testing* can sometimes be suggested with advantage, the degree of help given in this way varying with the difficulty of the question and the necessity of the moment. But often a young teacher is unaware of the extent to which she is suggesting an answer to her question by her way of putting it. Apart altogether from the form and wording of a question, she may give hints by her tone of voice, by some slight movement or in some other way without the slightest idea that she is doing so. More than once I have heard a student who had just unexpectedly got a

correct answer to a question ask the child, "How did you know?" and get in reply, "I knew by the way you asked".

Ballard [1] suggests an interesting little experiment by which we can illustrate to ourselves the fact that "strong intimations of meaning come from sources other than words".

A. places six pennies in the palm of his hand and shows them to B. Then a conversation like this takes place:

A. "How many pennies have I in my hand?"
B. "Six."
A. "I say there are five."
B. "I say there are six."
A. "Will you give me a penny if I am wrong?"
B. "Certainly."
A. "Well, I am wrong. Hand over the penny."

It is indeed amazing how readily people fall into the trap. Ballard analyses the situation thus:

> "B. is so ensnared by the general situation together with the form and cadence of the question, *Will you give me a penny if I am wrong?* that he interprets the question as though it had been either, *Will you give me a penny if you are wrong?* or *Will you give me a penny if I am right?*. He responds to the expected question, not to the actual question."

Children are very quick to respond to suggestion and the inducement to independent thought is diminished. This does not mean that suggestive questions are to be condemned entirely, but it does mean that a teacher should be aware that she is using suggestion and giving hints and she should have a good reason for doing so.

[1] Ballard, P. B., *Thought and Language*, (U.L.P.) pp. 71–72.

The ease with which children accept suggestions in the classroom is not difficult to demonstrate. In one investigation [1] 58 per cent. of the children tested worked this sum without noticing anything wrong with it.

" If Henry VIII had six wives, how many had Henry II? " No doubt the form of the question helped to deceive the children. It was also because the question was put in a manner which suggested that it could be solved. The same investigator found that a suggestion of the *impossibility of solution* reduced the number of correct answers to ordinary arithmetical problems from 80 to 60 per cent.

Other experiments might be quoted to show that work is more easily done if the suggestion is made that it is easy than if the suggestion is that it is very difficult and fatiguing.

In questioning, the children should be made to feel that the work is well within their powers, but hard enough or useful enough to make it worth their while to put effort into it.

[1] Bradford, E. J. G., The *Forum of Education*, Vol. III, 1925, pp. 6–7, " Suggestion, Reasoning and Arithmetic ".

CHAPTER VI

RECEIVING THE ANSWER AND DEALING WITH IT

LET us suppose the question has been put to the class. The class is alert and interested. There is an understanding that answers are not to be shouted out, and that one child will be asked for the answer. We wait while (so we hope) forty minds consider the question. For each child there is an incentive to effort and attention in the knowledge that he may be the one called upon to answer.

A number of hands go up. Here the teacher should after a little experience find herself making a mental note, for future reference, of those who repeatedly do not offer an answer. They can be helped later on. After a suitable pause a child is asked to answer. But which child? One of the beginner's tasks is to learn how to make the most of her opportunities here. Is she to ask the child who is waving his hand frantically in his anxiety to be asked, or the dull, slow-thinking child in the far corner of the room who never seems to care whether he is asked or not?

The child who causes a disturbance by pushing or waving too energetically can be ignored after, perhaps, a signal of disapproval.

If the teacher tries to drag the answer from the dull child in the far corner the others are bored, lose interest and find something else to do while they wait. Subtle forms of indiscipline are encouraged.

If she gets the answer rapidly and accurately from the bright child, the others may not hear properly or if they hear may not be able to understand and follow the next step.

It is not easy to know whether to risk losing the interest and attention of the bright part of the class while we help the duller part to struggle up towards the desired level, or to think mainly of the bright children and hope for the best as regards the duller ones who get left behind and discouraged while the bright ones sail easily onwards. Neither course is entirely satisfactory: nor is the compromise of catering for the average members. The difficulty is minimized, but not solved, when we divide our class into groups with children of relatively equal ability in the same group. The smaller the group the more the teaching can approximate to individual teaching, but no teacher can divide a large class into very small groups and hope to give each group adequate attention, unless of course in an exceptional school where some such procedure as the Dalton Plan [1] is followed.

In a large class not all can be allowed to take an active oral part every day. The teacher is tempted to rely on the quicker children who have the answer ready and enable her to get on with the lesson along the appointed lines. If this temptation is recognized and the teacher practises selecting different questions to suit the different individuals' capacities, none need be ignored. After a little experience it is not very difficult for a student to keep a rough record of the number of times each child answers a question. She might make a plan of the seating arrangement, and add a mark for each question

[1] See Parkhurst, Helen, *Education on the Dalton Plan* (Bell), 1930.

answered. The distribution in many lessons would be like this:

J. Brown	E. Hill //	S. O. Slow	E. Brooks /	
R. Painter	I. Scott ///	S. Gill //	B. Oakes /	etc.
A. Smith	B. Smart ///////	W. Jones	R. Wright //	

When a child asks a question a record could be made —perhaps a cross for a question asked by a child, and a dot for a question asked him by the teacher. A rough record shows all that is wanted: usually it shows that some children hardly answer at all, that very few *ask* questions and that some modification of the teaching procedure is desirable.

It is easy to vary the method of taking the answer. Sometimes one child is asked for it and the lesson proceeds at once. Sometimes several children are asked, one after the other. The answers can then be compared and if they differ a verdict of right or wrong can be given.

Sometimes if the answer is short all can be asked to jot it down quickly in their books or on paper. Then one child can be asked for his answer and all who agree (or disagree) can be asked to put up their hands. If the teacher can pass quickly round the class as the children write she can get a good idea of what individual children can do.

Discussion may sometimes arise as to which answers are satisfactory and which are not, or which is the best answer. This discussion should be indulged in only so far as it is necessary or helps the lesson forward. Usually the teacher knows the useful answer and accepts

it as the one on which she goes on building up the lesson.

Occasionally, when the whole class is keen to answer it may be good to say, "Well, everybody seems to know so everybody may answer".

The disadvantages of this procedure for general practice are that it may disturb neighbouring classes; it may mislead the teacher into thinking that all the children are working when in reality a few very active members of the class are doing most of the work; and the response to such an invitation is apt to be embarrassing in variety as well as in volume.

It is not to be recommended even for occasional use until the teacher has begun to feel fairly sure of herself. When she does so she will sometimes find it useful to let the class answer in unison. It can give vocal relief and make individuals feel that they are a part of the whole, thus helping towards a desirable feeling of unity. Such answers must be simple. "Yes" and "No" answers are sometimes helpful in this respect.

There are other advantages in occasional unison-answering. It may serve as a means of ensuring the attention of the whole class at the same time, and it can be used to revise, or to drill the class as in foreign languages or singing lessons.

In a small class it is possible to get endless variety in questioning procedure. Competitions are very popular and very useful. Suggestions are made elsewhere as to some of the forms these may take. It was once the custom in small schools for the class to stand round the teacher in a semi-circle, one end of which counted as the top of the class and the other end as the bottom. The aim of each child was at least to maintain

his position, and if possible to move upward towards the top. The top child aimed at defending his position against every rival. A child could gain a higher place only by answering a question missed by the child above him. One fortunate answer might mean several moves upward, if several children failed to answer, as the child who answered correctly always moved up to the position occupied by the child who first missed the question, while all those who missed moved one place downwards.

No doubt this was the custom in force in the school incident related of Sir Walter Scott.[1] Buckley[2] writes, "He has amusingly characterized his position in class as a kind of 'meteoric glancing' from bottom to top, and *vice versâ*. But these sudden moves were generally the result of wit and ingenuity rather than of patience and application. 'What part of speech is *cum*?' asked Dr. Adams[3] one day of an incorrigible dunce. The dunce remained silent. '*Cum* means *with*,' resumed the doctor, willing to help out the limited intellects of his pupil; 'Now tell me what part of speech is *with*!' 'A substantive,' replied the dunce, and the class was convulsed with laughter. 'Is *with* ever a substantive?' asked the patient pedagogue. The question was passed round to Scott, who instantly quoted the words of Judges xvi. 7: 'And Samson said unto Delilah, If they bind me with seven green *withs* that were never dried, then shall I become weak and as another man.'"

[1] Lockhart, J. G., *Life of Sir Walter Scott*, Vol. I (1839).
[2] Buckley, T. A., *The Dawnings of Genius* (Routledge, 1858), p. 334.
[3] "Adams" should read "Adam".

Blame and Praise in the Reception of Answers.

Disapproval is of course necessary at times, and some answers must be turned down firmly, but disapproval which invokes extreme fear or shame is undesirable. One student who as a child had to stand on a chair in front of the class because she could not answer a question said that ever afterwards even when she knew the right answer to a question she was seized by an uncontrollable fear if she was called on to answer it; her heart thumped, the blood sang in her ears and she trembled. Even as a university student this fear came over her when she tried to speak in class discussions.

Other students have reported that ridicule they received for sincerely given wrong answers had often kept them from taking any further part in the oral work of lessons.

So blame should be discriminating. Before meting it out the teacher should be sure of her ground. Often the mere fact of having failed is sufficient punishment. In such a case the child may become disheartened if the work is too hard and his efforts are not appreciated.

The teacher tends to be pleased only with the answer she is waiting for, and often it is right to take it when it is offered and proceed with the lesson. But the class should feel that a half-right or even a wrong answer is acceptable if it indicates real effort. Satisfaction with one's work is important in the learning process, and any slight improvement in a child's work should be used by the teacher as an occasion for encouragement. Where the teacher knows the children well a glance or a word is enough to lead the child to continued effort to improve.

Praise, like blame, should be discriminating. It

should be forthcoming for effort as well as for success, lest failure after effort make further effort seem futile. The child who answers a question should get some idea as to whether his answer is right or wrong. Sometimes this is obvious to him when he hears the right answer. Sometimes a word or two from the teacher will explain to him why or where he is wrong without breaking the thread of the lesson. If important enough, the matter might be explained to the individual afterwards.

Don't discourage the weak by excessive criticism. Show them how to improve and provide a stimulus to improvement by recognizing their efforts.

Children respond readily to a wise and timely comment (spoken or written) such as this: "This is the best exercise you have done this term. Note, however. . . ."

Where possible, make specific criticisms and give specific directions for improvement. This is important at all ages and times, but in particular should not be forgotten when new work or young or dull children are concerned.

It is discouraging and ineffective criticism to say, for example, "That's not good enough", or "You must try to do better than that", unless such a comment is followed up by constructive suggestions which will give the child an incentive and a chance to improve.

When disapproval is expressed, point out the particular reasons for this, the specific and definite ways in which he has failed. This is better than general and vague disapproval.

Don't discourage the strong either by too easy or by too hard work, nor by too much or too little criticism or praise. A word "good" or "yes" or a sign is often

enough. Success is often sufficient reward as failure is often sufficient punishment. In expressing praise or blame avoid forming a habit of using stereotyped phrases like "That's right". To use such a phrase twenty times in one short lesson (an actual case) is to use it about nineteen times too often.

When we are dealing with æsthetic subjects (including the crafts) and any special topic, in any subject, which needs an æsthetic approach or treatment, we should be particularly careful to consider the child's enjoyment of the work. Exercises which are too hard may sometimes whet the appetite or show the child his need for information and knowledge he does not possess. But if the work is too difficult, or otherwise unsuitable, and he does not see any use in it (as for example, in music, or painting or poetry), he is liable to acquire a prejudiced attitude towards it.

Bearing this in mind we shall do well to give more scope for appreciation than for executive work in the musical, literary and decorative arts. Of course, those children who have definite executive bent should be encouraged, and more difficult exercises can be provided for them. All should be encouraged to rise above their own easily attainable level. The point is that if the less gifted children are required to attempt work quite beyond their abilities they are liable to cease to make the effort to do anything.

Most children will in later life be more concerned with choosing or enjoying beautiful things than with making them, though none should be discouraged from learning to "joy in the making" to the best of their abilities.

Repetition of the answer.

When a question receives a correct answer in class we normally pass on at once to the next point. But the answer may sometimes need to be emphasized. We should make sure it is understood if it has been a difficult one and if it is in a difficult setting. The teacher has had it in mind for some time and has striven for it. After the struggle she may feel anxious to move on to the next point, but it may need to be emphasized by repetition, oral or written.

When repetition of an answer is desirable for clarity or emphasis, it may be wise for the teacher to repeat it herself, as for example the conclusion of an argument or discussion. But the best teachers are not constantly repeating answers. They delegate some of the repetition to the class. Teachers do too much of the talking in class, and here is a chance to allow the children to do their share and to learn not to rely too much on the teacher.

For example, in an arithmetic lesson one child gives an answer to a sum, and the teacher then asks several children, "What answer do you get?" "And you?" "And you?" In this way a number of children rapidly get a chance to take an active part in the lesson.

If the teacher is in the habit of repeating the answer given by a child, the others needn't listen until the teacher gives the finished product. Care should be taken to discourage careless listening and slovenly answering.

The class should develop a sense of responsibility in this matter. The child who answers must speak up so that all can hear. The teacher should resist the temptation to go towards children who do not speak out

clearly. It is better to move farther away so that they are encouraged to throw their voices forward.

Have a definite purpose behind repetition; for example, aim at clarifying, emphasizing, drilling or gaining the co-operation of the whole class.

Automatic repetition is useful in drill work such as the learning of tables and rules. An inattentive child may repeat something he has just heard without thinking much about its meaning and some good may be done. But where thought is necessary it is desirable to avoid the mere repetition of words without appreciation of the ideas behind them. Some reconstruction of form or change of words should then be required. And even in the more or less mechanical learning of tables or rules there comes a stage when variety of application must be provided if the rule or table is to be fully appreciated or generally useful.

The writer still remembers how this fact was strikingly brought home to her as a student when an inspector visited one of her lessons. The children were quite unable to answer certain apparently easy questions the inspector put to them. After his departure the questions he had put still failed to procure satisfactory answers. But when they were put in the words to which the class had become accustomed when dealing with the particular topic in question, there was an immediate and correct response.

The form and wording of answers.

The best form and wording of an answer depends on the form of the question and on its purpose.

Usually children should be expected to answer questions as they would be answered in ordinary con-

versation of a reasonably high level where the aim is distinctness of speech and clarity of expression. It would be pedantic and foolish to insist on complete sentences as answers to all our questions whatever the subject. On the other hand if our aim is to teach form and construction of sentences as in language teaching, it is essential at times to insist on complete sentences.

When speech or grammatical errors occur in children's answers they should be corrected without side-tracking the lesson or they may sometimes be noted and dealt with later. Where they are incidental and secondary, or so deeply rooted that they need time and frequency of correct practice for removal, it is often best for the teacher herself to repeat the matter of the answer given but in correct speech and grammar. The briefer the correction the better as a rule in order not to interrupt the progress of the work for the rest of the class.

When an answer turns out to be too long for a given child it can be shared. At a suitable moment the child is stopped and another is asked to finish—because it is a long answer, not because there is dissatisfaction with the child who has begun the answer. It is well in such a case to choose a child from the other side of the room to answer, especially if the class is large. Attention may then be well distributed and wandering thoughts recalled.

Some questions call forth no answer from the class. Even a bad question which is unsuccessful in obtaining an answer may be some preparation for the children to receive the right answer. They may receive this more satisfactorily than if it had been presented to them merely as a fact without previous questioning about it.

None the less, the teacher hopes for answers to almost all her questions, and if she finds herself answering many of them herself she had better give more thought to the making of them.

In the cases where the teacher expects no verbal answer to a question the response it evokes is usually sufficient for her purpose. If, for example, the question has been intended to puzzle the class, its puzzled look is an excellent answer.

Wrong answers.

Though right answers are our goal, wrong answers may be very useful to us. They give us a chance to clear up misapprehensions, absurdities, obscurities and difficulties. They may be treated tactfully and fruitfully without diverting interest or interrupting the lesson. Often they are best ignored if the right answer is forthcoming elsewhere, and if the child who has given the wrong answer simply accepts the right one as a correction. He may sometimes be asked to repeat it. It is not always wise to stop to explain why his own answer was wrong.

On the other hand, a wrong answer from one child may indicate a confusion in the minds of others and it is then worth while to stop and clear up the matter. This clearing up should not be a *tête-à-tête*. All should be interested and should feel that at any moment anyone may be called on to help. Here are one or two ordinary cases which occurred in class.

(*a*) The student asked, "What do we mean by *simile*?" and a child gave an example of a *syllable*. The student then wrote the two words on the blackboard, said they weren't the same and got examples of

each from different members of the class and wrote them on the board under the appropriate heading.

In the second case, a sharp comment from the teacher brought forth the right answer from the child who had at first given the wrong one.

(*b*) *Teacher*: "Which country has most coal?"

Child: "Round the Pennines."

Teacher (sharply): "I asked you *which country*?"

The child sat up straight and gave an acceptable answer at once. The rest of the class looked more alert.

(*c*) In the same lesson the question was "Where are the Pennines?" One child answered, "In Scotland".

Teacher: "Point them out on the map!"

The child pointed them out correctly.

Teacher: "What country is that?"

Child: "England."

To drive the point home still further the teacher added: "Did you know they were called the backbone of England?" and the child replied, "Yes". The teacher then ended the incident with the smiling comment: "Well, then, how could they be in Scotland?".

Sometimes wrong answers are due to the teacher's carelessness with her wording. It is the question, not the answer, which is at fault. If so, the child must not be blamed.

Amusing examples are often quoted, e.g.:

(*a*) *Teacher*: "Why is it a bad thing to copy from the boy next to you?"

Child: "Because he might be wrong."

(*b*) *Teacher*: "Why is it wrong to say, 'I ain't good-looking'?"

Child: "Because you are, Miss!"

The following are more ordinary, though less amusing, illustrations.

(*c*) *Teacher*: "Why do you think ships are not built in Birmingham?"

Child: "Because we never see them there."

What the teacher meant to ask was, "Why are ships not built in Birmingham?"

(*d*) *Teacher*: "What is the biggest town in the Midlands?"

No answer from child.

Teacher: "Do you live in a small or big town?"

No answer from child.

Teacher: "Do you know what Birmingham is called?"

Child: "*Brum*, Miss." (Laughter from the class.)

Teacher: "I mean what is it called because it makes so many things of iron and steel . . . your mother's sewing machine . . . your nibs, etc.?"

Child: "'The Workshop of the World'"—the answer required.

Guessing.

Children should sometimes be allowed to guess. The most important requirement in such cases is that both teacher and child should be aware that guessing is going on. The student should note what Professor Godfrey Thomson has to say on this point. He writes: "In the inductive portions of a lesson, the great need is to encourage freedom of hypothesis making, accompanied by honest trial and rejection. The line between wild guessing on the part of the pupils, and legitimate

hypothesis, is hard to draw, but so it is also in real scientific work." [1]

It is interesting and often instructive to try to trace wrong answers to their sources. This is not always easy. Professor Thomson's case [2] of the small boy who said "hedgehogs have balances" is not easy to understand until we know that he had heard a story of a hedgehog which had lost its balance.

Adams [3] wrote:

> "Every time that a howler is made, and the teacher can explain how it occurs, he is entitled to put a good mark opposite his name, and to go on comfortably to his next encounter with his pupils. But on every occasion when a howler has an origin inexplicable to the teacher, he ought to put a bad mark against his name, and go for a time into professional sackcloth and ashes. A howler that cannot be analysed and explained by the teacher indicates an unexplored tract of pupil mind, and it is of the essence of his craft that the teacher should encounter as few of these tracts as possible. To be sure, a complete chart of the pupil's mental content is beyond the teacher's grasp; but the nearer it can be approached, the more is the teacher a master of his craft."

Here are one or two examples for the student to think about while she waits for her own examples to occur in class.[4]

[1] Thomson, Godfrey H., *Instinct, Intelligence and Character* (George Allen and Unwin), p. 271.
[2] *Ibid.*, p. 120.
[3] Adams, John, *Errors in School* (U.L.P., 1927), p. 11.
[4] See also Ballard, P. B., *Thought and Language* (U.L.P., 1934), p. 93.

(*a*) *Teacher*: "What is the gender of egg?"

Child. "You can't tell till it is hatched."

(*b*) *Teacher*: "What does 'Honi soit qui mal y pense' mean?"

Child: "He may be honest who thinks badly."

In the next two cases we find unexpected lines of reasoning. The reasoning is good enough within the limits of the child's ideas.

(*c*) *Teacher*: "Why was Monmouth executed?"

Child: "Because he stole peas." The child had heard that when Monmouth was captured in a ditch his pocket was full of peas.[1]

(*d*) *Teacher*: "Why is Madame Patti called the Welsh Nightingale?"

Child: "Because she sings at night."

How should the teacher deal with *funny answers*, or answers meant by the pupil to be funny, or impertinent? Sometimes the teacher is responsible because she has worded her question badly and then she must recognize her own error.

A sense of humour is very valuable and so is good-humoured acceptance of humour in the class. If the answer is really funny or witty, or if the class seems to think it is, then often the right thing to do is to laugh with the class. The teacher can then point out that though we were all amused at it, it really wasn't a very good answer to the question asked (provided this is true!), e.g. she might say that it was irrelevant, or she might ask the child to show how it was relevant. She can then repeat the question (either in the same words if they were satisfactory, or in improved form if necessary) and give the original answerer a chance to give another

[1] Adams, John, *Errors in School* (U.L.P., 1927), p. 13.

and better answer. Failing this she can ask another child on whom she can rely to give an answer which will allow the lesson to go on smoothly. An incident like this is not at all serious in a class where teacher and children are on friendly terms. Sometimes the teacher can continue the joke for a moment by some comment of her own, but this should not be done sarcastically nor angrily nor with the idea of getting her own back or scoring off the child.

Sometimes ignore a wrong but funny answer, sometimes turn it to advantage, sometimes indicate disapproval by a look or a sign, sometimes say, " No, that is quite wrong ". Adams [1] suggests as treatment for a funny answer:

(1) Changing the form of the question if it is bad.
(2) If nothing is wrong with the question, repeating it and ignoring the funny answer.

Even when the child has not meant to be serious it is often good treatment to behave as if he had and take up his answer and discuss it. A student in answer to her question, " Why is alcohol not a suitable liquid to use for all kinds of thermometers? " received to the great amusement of the class the answer, " It might go ' flat ' ". The student asked the child quite seriously what made alcohol go flat, a short discussion ensued about fermentation and carbon dioxide and the student explained that the pure alcohol used in thermometers did not effervesce.

Howlers are enjoyable, but the student should not stop there. She should try to find what lies behind them. Even when she suspects that a particular

[1] See book references in footnotes, pp. 84, 88, 138, this book.

example may have been " made-up " as a joke, she may find it useful to consider it as having some basis worth thinking about.

A naval officer, as a sub-lieutenant, once answered the question, " What is a Daniell's cell? Describe it," as follows:

" Not much is known about Daniell's cell. It was probably about 30 feet long by 20 feet wide and full of lions. But the lions are dead, and so is Daniel. *Sic transit gloria mundi.*"

(The Daniell's cell is a type of electric battery).

If the story is true, this may have been " a brave try ". It seems more likely, however, that the officer knew he couldn't answer correctly and wrote the answer as a joke.

There was probably quite a different reason for the answer given to a painter by his friend who was a doctor. The painter, feeling that he would like his friend's opinion about a picture he had just painted, asked the doctor to look at it. It represented a dying man. The two friends gazed intently at the picture, and after a time the painter asked, " Well, what do you think? " " Malaria ", was the answer.

The reason why this answer was unexpected to the painter was because the set of his mind and that of the doctor were very different in respect to illness and death as represented in the picture.

A large number of newspaper jokes are based on the fact that one person is unaware of, or mistaken about, what is going on in the mind of the other person.

Similarly, unexpected answers (whether funny or not) are sometimes due to the different " set of mind " of teacher and child.

Adams has many interesting things to say on this

point and the student should certainly refer to his writings on this and other matters.[1] The following quotations are intended to drive home the important fact that teacher and child should work " in the same system ".

> " With his mind full of the discussion on the purification of the Clyde, the teacher puts the problem: ' Bruce in his old age lived at Roseneath. While living there he may have fished in the River Clyde. Why could he not fish there now?' Pulling out to its full extent the stop of common-sense, the child replies: ' Because he's dead '." The teacher should have made sure John and he were working in the same system.
>
> " . . . The stop of an organ, . . . gives a new character to the whole harmony so long as it is in action. When we take up a French book out comes the French stop, and the whole mental apparatus adopts the French style of vocabulary and construction."
>
> " Each question ought, as one of its essential qualities, to indicate the system to which it belongs. Yet there is no more common mistake in teaching than to ask a question out of a certain system in the teacher's mind, without in any way giving the pupil a clue as to which system it is."

[1] E.g. Adams, John, *The Herbartian Psychology* (Heath), pp. 212–213. See other references on pp. 84, 138, of this book.

CHAPTER VII

SOME MISUSES OF QUESTIONING

QUESTIONS and answers, if badly used, may be an educational hindrance rather than a help. Situations in which this may occur are mentioned from time to time throughout the book,[1] but it seems desirable to devote a special section to a summary of the most common misuses against which a young teacher should be on her guard.

These can conveniently be dealt with under three headings.

1. *Firstly*, questioning is out of place if it interrupts some important mental function which is going on when the question is put, and interferes unnecessarily with the child's (*a*) thoughts, (*b*) actions or (*c*) feelings.

(*a*) The child's *thinking* may be disturbed by the teacher's questions. Human beings old and young usually prefer to continue a course of thought once embarked upon rather than abandon it at a word or a question from outside. It is not always easy to drop one's own line of thought in order to take up another which is suggested by someone else. The adult who has begun to learn a new foreign language will appre-

[1] Examples of such situations are: when certain members of the class monopolize the answering or the discussion and the rest are bored; when certain members are allowed to be lazy while others do all the work; when irrelevant ideas are introduced; when answers are unintentionally suggested; when they are too many, too hard, too discursive, badly put, badly worded, badly distributed or used at the wrong time.

ciate the point if he has suffered the annoyance of being interrupted and "helped" when he is mentally arranging a sentence which he is about to venture, pausing to think of the next word, or hesitating for a moment before a difficult pronunciation.

Graham Wallas, in his book *The Art of Thought*,[1] very interestingly analyses the thought process into four main stages, Preparation, Incubation, Illumination and Verification, and draws special attention to the ill effects of interrupting a thinker at the critical moment of *Intimation*, a moment which immediately precedes *Illumination*.

"All thinkers", he writes (p. 104), "know the effect of the ringing of the telephone bell, or the entrance of someone with a practical question which must be answered, during a promising Intimation." The intimation time is that moment when a "happy idea" is about to be born, when "the fully conscious flash of success" is coming, when we know the solution to our problem is on the way, though we don't yet know what it is. Interruption at this stage is particularly disastrous, but the thought is liable to "miscarry" at any stage if the thought process is interrupted.[2]

[1] Wallas, Graham, *The Art of Thought* (Jonathan Cape, 1926), Chapter IV.

[2] Wallas, Graham, *op. cit.*, p. 104, refers to the well-known Socratic comparison of the birth of a thought to the birth of a child as follows, "Aristophanes, when in the Clouds he makes Socrates complain that his disciple by asking him a question had caused a valuable thought to 'miscarry', was probably quoting some saying of Socrates himself, whose mother was a midwife, and who was fond of that metaphor." Unfortunately Wallas misquotes his source, though (fortunately) this does not invalidate his argument. Appendix III, this book, gives the source. It also gives an example of Socratic Questioning. References to the latter in educational text-books are often much too vague and based rather on legend than on study of the Socratic Dialogues.

(*b*) The child's *doing* of things should not suffer unnecessary interruptions, in question form or otherwise. The teacher may not find it easy to remain in the background and let the children get on with their chosen or "set" work in their own way, but the time when a child's whole mind, and perhaps his whole body as well, is concentrated on getting something done is not the time to interrupt him if interruption can be avoided. During the learning process he is often thinking, doing and feeling all at once: to interrupt him in such a case is "bad manners but worse pedagogy".

(*c*) The child's *enjoyment* of his work may be spoiled by the introduction of difficult or irrelevant questions. In some lessons and parts of lessons the intellectual analytical attitude which is encouraged by most kinds of questions is out of place. Outstanding examples of such lessons are those in which the primary aim is the enjoyment of some dramatic, literary, musical or pictorial effect. This does not mean that questions should be completely excluded from such lessons. It means that they should be chosen and put with particular caution.

There is justification for the view that certain studies, such as poetry, literature, drama, pictorial art and music, make a predominantly emotional appeal whereas in certain other studies, like physics, chemistry or mathematics, the appeal is predominantly intellectual.

In the classroom, however, emotion and intellect overlap and interact so intimately that the distinction becomes very artificial. The arts as well as the sciences need orderly method, skill and intellectual qualities of mind: the sciences as well as the arts can

make glad the heart of both teacher and child. Teachers of art are not all-emotional: teachers of science are not all-logical. Parts of all subjects have a strong intellectual appeal, and parts of all have a strong emotional appeal. In substance and method there is overlap. It is a matter of emphasis. In the appreciation lesson the emphasis is laid on the enjoyment of the products and achievements of man or of nature. In contrast there are lessons or parts of lessons in which the emphasis is laid on the understanding of man's life and surroundings, or on logical thought concerning these. Obviously most lessons make a mixed appeal.

Questioning is so often over-used, under-used or used at the wrong time in lessons or parts of lessons in which the appeal of the topic is mainly emotional rather than intellectual that it seems worth while to deal with the subject at some length, and to quote several writers who have given the matter thought.

Professor Wheeler writes, " There is a need for silence and contemplation, for synthesis as well as analysis in the study of art, music, poetry and nature ". Taken as our text this suggests that once the material has been carefully chosen and carefully presented it should be allowed to make its own impression. It is easy to spoil a pleasurable emotion, to break the spell of music, art or literature, by the intrusion of the analytical attitude towards it.

Unfortunately some of the questions asked in the classroom, when enjoyment should be the key-word, would chill any emotion and break any spell. There are times when intellectual distraction is undesirable, just as there are times when emotion is an intrusion and

to be avoided. Professor Wheeler [1] makes a protest against the tendency of teachers of adolescent children to try to cater for the growing capacity for analytic thought at the expense of the power to appreciate beauty (of form or rhythm or words for example), which is another rapidly growing capacity at this age, and an extremely important one. She advocates inspirational methods as well as analytical: she pleads that greater opportunities and greater freedom than there are in schools to-day be given to children for the enjoyment of music, art and poetry.

F. H. Hayward [2] argues against "intellectual distraction" thus: "We cannot appreciate a work of art if we are worrying over unsolved problems; if the unfamiliar, the ambiguous, or the inconsistent in what we are contemplating persists in irritating us; if extraneous stimuli, unrelated to the poem or the symphony or the picture, intrude themselves upon our attention".

Quiller-Couch [3] gives advice for the reading of a poem to a class. He advises us to be sparing of interruptions; to read straight-through to the end and then return to special beauties; and invite questions.

[1] Wheeler, Olive A., *Youth* (U.L.P., 1933), p. 158. See also *Brit. Journ. Psych.*, XIII, 3, "An Analysis of Literary Appreciation", by Olive A. Wheeler.

[2] Hayward, F. H., *The Lesson in Appreciation* (Macmillan), pp. 12–13.

[3] Quiller-Couch, Sir Arthur, *On the Art of Reading* (Cambridge University Press, 1921), pp. 67–70. See also Adams, John, *The New Teaching* (Hodder and Stoughton), p. 72. "A boy may disturb his parents in the evening by his uproarious laughter over certain passages in *Don Quixote*, or gloat over the Lilliputians, while leaving to the future the understanding of the full meaning of the books. So, too, some of our poets may be read at an early stage for the mere sound and the surface meaning."

His refrain is "go on reading". Of "L'Allegro" [1] he writes:

> "Go on: just read it to them. They won't know who Hebe was, but you can tell them later. The metre is taking hold of them . . . Go on steadily . . . Do not pause and explain what a Nymph is, or why Liberty is the 'Mountain Nymph'! Go on reading . . . Don't stop (I say) to explain that Hebe was (for once) the legitimate daughter of Zeus and, as such, had the privilege to draw wine for the Gods. Don't even stop, just yet, to explain who the gods were. Don't discourse on amber, otherwise ambergris; don't explain that 'gris' in this connexion doesn't mean 'grease'; don't trace it through the Arabic into Noah's Ark; don't prove its electrical properties by tearing up paper into little bits and attracting them with the mouth-piece of your pipe rubbed on your sleeve. Don't insist philologically that when every shepherd 'tells his tale' he is not relating an anecdote but simply keeping tally of his flock.
>
> "Just go on reading, as well as you can; and be sure that when the children get the thrill of it, for which you wait, they will be asking more questions, and pertinent ones, than you are able to answer."

So far we have been indicating ways in which over-questioning or questioning at the wrong time can spoil the enjoyment of a lesson. It would be just as disastrous to exclude entirely from the "appreciation lesson" the analytic procedure and outlook.

Some children may be capable of making for themselves that satisfying combination of the emotional and the intellectual effect of poetry and other forms of art which will make them a joy forever. Probably these are

[1] See Appendix IV, this book, for the whole poem.

exceptional children. Most need help. And even the few who can do it for themselves are likely to feel in after years that the process might have been made easier for them.

Greening Lamborn,[1] for example, says of poetry: " like all the fine arts, it will only yield its full delight to the trained seeker, the critic—in the true meaning of that much-abused word ". And in another place [2] he wishes there had been someone to reveal to him the felicities that awaited discovery and were the reward of the trained seeker. Questions, he believes, may be a stimulus and an inspiration.

The point of view of the psychologist Woodworth [3] is relevant here. He notes that, " Perhaps we do not often think of a fine painting or piece of music as a problem set us for solution, but it is that, and owes part of its appeal to its being a problem. If the problem presented is too difficult for us, the work of art is dry; if too easy, it is tame." He points out that many great works of art require mental effort for their appreciation.

He writes:

> " You must be wide-awake to follow a play of Shakespeare; you must puzzle out the meaning of a group painting before fully enjoying it; and music may be too ' classical ' for many to grasp and follow. Unless, then, the artist has made a great mistake, the mental [4] activity which he demands

[1] Lamborn, Greening E. A., *The Rudiments of Criticism* (Oxford, Clarendon Press), p. 8.

[2] Lamborn, Greening E. A., *Poetic Values. A Guide to the Appreciation of the Golden Treasury* (Oxford, Clarendon Press, 1928). Preface, p. x.

[3] Woodworth, R. S., *Psychology* (Methuen), p. 513 (10th edition); p. 573 (18th edition).

[4] *Intellectual* activity would be a better term here.

from his public must contribute to the satisfaction they derive from his works. If his appeal were simply to their emotions, any intellectual labor would be a disturbing element. The intellectual appeal is partly to objective interests in the thing presented, partly to interest in the workmanship, and partly to the mastery motive in the form of problem solution."

Though Hayward [1] believes that problem-solving can be a deadly enemy to pure appreciation, he admits that there comes a stage in the appreciation lesson where the "problematic situation", which is "almost always an effective means of arousing attention and ensuring intellectual interest", may and indeed should emerge. At this stage he would let the teacher question to his heart's content. ". . . now is his hour. He has done his best to insure the appreciation of a thing of beauty; now he can analyze, explain, interrogate, interpret to his heart's content." [2]

The teacher, meeting a new class, may find that some of the children cannot enjoy a poem, a picture or other work of art without "worrying over unsolved problems". She may even find it hard to do so herself. The children (and she) may need practice in isolating the purely intellectual from the purely emotional

[1] Hayward, F. H., *The Lesson in Appreciation* (Macmillan), p. 88.

[2] The passage quoted occurs in *The Lesson in Appreciation*, p. 92. It follows this statement: "He is here on familiar ground—the familiar and prosy ground of the intellect, not the mystery-haunted realm of feeling. Let him go his way boldly. His usual methods will be, for the most part, sound enough now." But in the present writer's opinion sound prowess on the familiar and prosy ground of intellect is by no means so easy and certain as Hayward suggests. Nor is it nearly so dull.

elements even if she decides to take Quiller-Couch's advice as quoted above.

In school we are so accustomed to putting the intellectual side first that to some teachers, and even to some children, there is at first something perhaps a little blameworthy in the thought of " mere enjoyment ". When it is recognized that the enjoyment is a preliminary to more " intellectual " study, the sense of guilt may go. In any case it is well to learn that there is not necessarily anything wrong in " sheer enjoyment ".

Some works of art need to have the ground prepared before they can be satisfactorily presented to a class. Often it is well to make sure before a poem is read that the children already know any key-word, or archaic word, or obsolete construction which is likely to prove a barrier to their surrender to the attitude of enjoyment. It is the *time* of the introduction of explanations, discussion and questions that matters. Foreseen difficulties can be dealt with in a previous lesson or at the beginning of the appreciation lesson, and the mind and mood may be prepared in advance. Some explanations can safely be left for a later lesson, some obscurities can, at the teacher's discretion, be left entirely unexplained, unquestioned.

Whether or not questions are asked and explanations provided before the lesson, they are certainly in place after it. When the first direct impression has been made, discussion, explanations and questions are necessary if the child is to be led to appreciate beauties he would otherwise never suspect. Even those beauties which he has felt by the direct impression may be enhanced.

Greening Lamborn [1] quotes C. M. Trevelyan's dictum that "one's own judgement of poetry is the only one worth having, not because it is necessarily right but because it alone is strongly felt". He thinks that is true only when our judgment is based upon and fortified by a knowledge of technique and adds, "it is not enough to like a thing: we ought to know why it is worth liking".

We have taken an example of one extreme method where the poem "L'Allegro" is presented in such a way as to make its own direct appeal. Examples of the other extreme are too common. The work of art is pulled to pieces and never put together again. The narrative (itself a work of art when properly presented) is broken up by comments and questions, or even if reasonably well presented it is too often spoiled by a stream of questions from the teacher at the end. "Did you like that story? Why did you like it? What did it make you feel? What was it about? How did the hero escape? What part of speech is the word *hero*? Now would you like me to tell you more about him?" These are the actual questions put after one lesson.

The student should of course have paused at the end of her story and, temporarily at least, left the initiation of the next move to the children. Usually the class will in such a case provide enough comments and questions to be instructive to the student and to give her a lead as regards the children's interests and the lines along which she can now best proceed if she is to achieve her aim, immediate or distant.

[1] Lamborn, Greening E. A., *Poetic Values. A Guide to the Appreciation of the Golden Treasury* (Oxford at the Clarendon Press, 1928). Preface, pp. x–xi.

It is well to remember that a work of art takes some time to make its appeal even when presented directly. In the case of the story mentioned above no time whatever was left for it to " sink in " or " settle down " in the children's minds.

Children themselves sometimes interrupt a narrative. What then? Minds can be set at rest by a simple, quiet, relevant answer, or by a statement that all questions will be answered at the end of the story.

> " What to discuss and where to stop the teacher must decide: he needs not only a knowledge of his class, but sound scholarship, good taste, and good sense to save him from mistakes . . . the analysis that reveals to the pupil new meanings within his power of comprehension, and new beauties within his power of appreciation, while keeping true to the spirit and tenor of the literature as it is known to scholars—such analysis is not only safe, but of the very essence of good teaching." [1]

2. *Secondly*, questions are misused when they mean that the teacher is doing too much of the important work. A series of well-arranged questions by the teacher may make it too easy for the class to recall and arrange facts in a suitable order. The child should be given opportunity after opportunity to think for himself, and this involves the collection, recall, selection and arrangement of facts, so that he may learn before leaving school as much as possible of the art of thinking. If the teacher does too much of the thinking which the child might do for himself, she may keep from arising

[1] Carpenter, G. R., Baker, F. T., and Scott, F. N., *The Teaching of English in the Elementary and the Secondary School* (Longmans, Green and Co.), p. 281.

certain difficulties, some of which the child could have faced and overcome for himself. Some children learn to depend on what has been called "the constant jogging stimulus of the teacher's questions". Well-planned questions and series of questions are essential; but they must be kept well under the teacher's control. In large classes especially, the temptation is great for the teacher to follow what is known as the "logical order" of development. She should often remind herself that, where circumstances permit, it is far better for the children to learn in their own natural way, which is not necessarily the method one would choose from an adult standpoint. She must of course have in her own mind an orderly arrangement of her subject-matter, and she must not lose sight of her aims, even while she allows the work to proceed along the lines suggested by the child's natural tendencies and acquired interests and habits, until he gradually attains to the adult standards.

3. *Thirdly*, questioning is abused when a persistent attempt is made to extract from the child information or responses which he cannot or will not give. It is usually wrong to insist on an answer in the face of a child's reluctance or inability to give one. Insistence is likely to make matters worse instead of better, and the child's defensive attitude may cause quibbling or stalling, sulking, lying or prevarication. The results may be more lasting than the teacher realizes at the time. Reminiscent adults sometimes tell stories of being "too paralysed" to answer in class though they knew the answers, and claim that the kind of treatment they received from one or other of their teachers was responsible for some of their adult shynesses and

weaknesses. Teachers themselves have been influenced in this way regarding particular school subjects. One teacher remembers trying to learn geometry with a teacher who insisted on answers to all questions. She remembers vainly racking her brains for an answer to a certain question, and " withering under the scolding ". When she had finished with the subject she said, " Thank Heaven I've finished with that ", and burnt all the books connected with the subject.

Another teacher remembers her inability to speak in school French lessons. She was so afraid of the mistress that, instead of attending to the lesson, she was possessed by a dread of being asked a question, and when at last asked she could never answer. To her immense relief, the mistress began to leave her alone, and then she became able to listen to what was going on, and her work in the subject improved considerably.

In foreign language teaching, but not in that alone, we must remember that a child who is expecting to be called on to make up some sort of an answer to a question which may descend upon him at any moment cannot give himself up to listening, observing and enjoying the foreign language in the way he ought to do if he is going to make good progress in it. There should be times when he can feel safe from the risk of being taken unawares. Many children hate to be " pounced upon " in class. Pouncing often drives out of their minds any relevant ideas they may have on a subject. It should be reserved for special occasions, and used with caution and discretion.

Where fear and nervousness play a part in lack of response, open failure may accentuate the trouble, and though shy and nervous children should be encouraged

to answer in class this must be done sympathetically, and with the use of wisely chosen questions which promise success, not failure. An excessively sensitive child may be aware that he appears stupid or stubborn because he does not answer, and at the same time he may be afraid to answer because of the effect he imagines his answer will have on the teacher or on his fellow pupils. It is bad enough to be afraid of answering, or to be afraid of not answering. To be afraid of both at the same time is a particularly unsatisfactory state of mind.

Motives like fear and self-assertiveness can often be detected behind a child's quibbling or stalling, sulking, prevaricating or his giving of lying responses to questions he does not want to answer. He may tell a lie because he is afraid to answer a question truthfully. Then he may become stubborn and self-assertive and refuse to admit that he has been lying. Even when he ceases to fear some definite punishment he may still refuse to risk losing the respect or affection of his teacher. Obviously it is wrong to push a child into such a difficult situation.

In disciplinary matters, one never knows where inquisitorial questions will lead. Ask a child, "Do you know anything about this broken window?" and he may answer truthfully and willingly "Yes". Another child, asked the same question in, so far as we can tell, the same circumstances may say "No", or pretend not to hear and at once begin to talk about something quite irrelevant. If pressed for an answer he may make something up, and once having given an answer he may stick to it through thick and thin even if it is false. Now the teacher may think it essential to find out as much as she can about that broken window, but in doing so she ought to take into account the tempera-

ment and character of the individual children she questions. She should recognize the fact that in this kind of situation there may be complications which do not appear on the surface. An archaic meaning of the word *question* is " torture to elicit confession ",[1] and children are still, even in modern times, sometimes " put to the question " in this sense. In many irregularities and breaches of discipline, it is wiser as well as kinder to adopt the principle enunciated by Mr. Enfield in *Dr. Jekyll and Mr. Hyde*, and approved by Mr. Utterson the lawyer. " The more it looks like Queer Street," said Mr. Enfield, " the less I ask." " I feel very strongly about putting questions ", he explained. " It partakes too much of the style of the day of judgment. You start a question, and it's like starting a stone. You sit quietly on the top of a hill; and away the stone goes, starting others; and presently some bland old bird (the last you would have thought of) is knocked on the head in his own back garden, and the family have to change their name." [2]

An interesting question for a student to think over is this: How reliable is the evidence of a child in response to questions? The answer depends to a great extent on the circumstances, for example, his age, his home and his normality.

In one enquiry [3] in which children aged 10 to 14 were examined, the investigators came to the conclusion that, as a rule, the evidence of children is reliable only when it is given *spontaneously*. They found that

[1] *The Concise Oxford Dictionary.*
[2] R. L. Stevenson, *The Strange Case of Dr. Jekyll and Mr. Hyde*, Chapter I.
[3] T. H. Pear and Stanley Wyatt, " The Testimony of Normal and Mentally Defective Children ", *Brit. Journ. Psych.*, VI, p. 417.

interrogated evidence was much less reliable than spontaneous reports. More than one third of the replies of the normal children examined and more than one half of those of the mentally deficient children were incorrect. In another piece of research [1] some of the subjects were six-year-old children in an elementary school in a very poor district. The investigator found that certain of these children seemed to have no ability to distinguish between the accurate and the inaccurate in simple material, nor between what was seen and what was imagined. He showed them a picture of college buildings, dense trees and a river spanned by a wooden bridge near which were two small punts. The picture was then removed from view, and the children described what they had seen. One boy "saw" (falsely) a little boy in a "hat and blue sailor coat" and readily accepted the misleading suggestion that there was also a woman. He added that she was waving her hand to the little boy, and that he was waving too. When shown the picture again, and asked where the woman was, he replied very confidently "She's in her house". The investigator believes that this characteristic of indifference to a strict line between reality and imagination is more common among slum children than others, and suggests the explanation that these children have to give answers at home which will please their parents. The strict truth of the answer is not an immediate concern. If the answer displeases the child's parents he is punished. Hence he is willing and even anxious to see what he thinks he ought to see, and this brings about an attitude of mind favourable to

[1] Frank Smith, "An Experimental Investigation of Perception", *Brit. Journ. Psych.*, VI, pp. 349–350.

" creative imagination " of the kind described.[1] It should be remembered here that some little children of good homes exhibit the same tendency even when there seems to be no reason for fear. At times they seem to " romance " for the sake of building up another and perhaps more amusing world for themselves; sometimes they seem to desire to please parent or teacher; sometimes they do not care to admit defeat. Sometimes a child appears to be practising and presumably enjoying the process of the manipulation of words: of ideas: arranging them and gaining power over them without reference to what Woodworth has called [2] " the *social* difference between his make-believe, which no one objects to, and his story-telling, which may lead people astray ". Sometimes he appears to answer questions in such a way as to cause the matter to be dismissed and so give no further trouble. Normally as the child grows older the tendency to " romance " becomes less marked, but in some environments, e.g. where fear is operative, the habit may become fixed and a handicap in life.

[1] Both children and adults who answer questionnaires are liable to a similar kind of influence unless their reports are anonymous.

[2] Woodworth, R. S., *Psychology—A Study of Mental Life* (Methuen), p. 490 (10th edition), p. 554 (18th edition).

CHAPTER VIII

WRITTEN WORK

Corrections

THE young teacher is usually very conscientious about corrections. Too often they become a burden to her, for, realizing their importance, she is inclined to press herself too hard in an effort to keep them up to date. The writer has seen a teacher of several years' experience sit down before a large pile of exercise books, gaze at them for a little, and then burst into tears. After that she conscientiously set herself to mark them in detail, "writing in" the corrections on every book. This was a serious case of "to-day's past competing with to-morrow's future". If we had followed this teacher to school next day with her arm-load of red-ink-bespattered books we should almost certainly have seen her become more deeply distressed as she conscientiously tried to deal with the books and their owners.

Probably some of the bright active members of the class bombarded her with questions and requests for help with the corrections, which she had no time to give. Some may have taken the matter too seriously and become discouraged or worried. Others would be protectively indifferent and some would take the mistakes as a matter of course. A few would be likely to treat the excessive red ink in their books as a joke to enjoy with their cronies. In none of these cases would the state of affairs be satisfactory.

A class which is unable to cope with its tasks will naturally seek and find more attractive pursuits, and may get out of hand altogether.

The time of our young friend on the evening of her tears would have been better spent in some congenial relaxation, reading, seeing friends or even in doing nothing at all. Or she might have occupied herself profitably by trying to analyse the situation, by asking herself how far the unsatisfactory state of affairs was her own fault, and whether she could avoid it in future.

When a teacher fails to come up to the standard she is aiming at, she should enquire of herself whether she has set herself too high an aim or whether she is using wrong methods in attempting to attain it. She had better lower her standard than exhaust herself in a fruitless effort to reach an unattainable ideal.

The problem is to get the corrections done without persistent overwork. Different methods should be tried, and some of the following suggestions should prove helpful.

1. Don't let "corrections" accumulate. If you find they are doing so call a halt for the time being. Give no more written work which needs correction until the accumulation has been satisfactorily disposed of. When choosing exercises remember that they have to be corrected. As far as you can, make them such as to encourage rather than discourage both the children and yourself. Set only useful and necessary work. Have a definite purpose in setting it, and bear in mind this purpose when you come to mark it and to return it. Decide on the degree of accuracy and neatness you require in each exercise (for topic and child), and while pursuing your specific and *immediate* aim do not over-

look the more general and distant aims, such as the development of habits and ideals of accuracy and neatness.

2. Don't give exercises which are likely to produce a large crop of mistakes. If you habitually do so the children may become careless and hurry through the work. Let them feel that if they take care they can sometimes produce perfect work. If in a given piece of work a great many mistakes are made, it is sometimes advisable not to try to deal with them all in class, but to concentrate on a few of the most important ones and to make good resolutions for the future. In such a case it may be necessary to "write in" corrections in the books. It may be that some can be left, for the time being at least, uncorrected.

3. Do the marking and the corrections as soon as possible after the mistakes have been made. Two good reasons for this are:

(1) If both teacher and child have the matter clearly in mind they are more likely to be interested in the corrections now than later on. This applies to examination results also. These should be announced as soon as possible. Examination papers can often be used for immediate *teaching* purposes after they have served their original purpose of *testing*.

(2) The impression made by written or spoken errors should be removed before it deepens and becomes fixed. Delay in correction gives time and opportunity for repetition of the mistake, and for fixation which makes eradication difficult. There is, however, no need to be seriously alarmed about the possible effects of occasional delay, for the child mind is very adaptable. Also it seems that the mistakes a child makes while he is in a state of

doubt about the accuracy of his statements do not make so deep an impression as if he were in the first place sure of their accuracy. We often learn by making mistakes so we should not be too much afraid of making them.

The general practice should be (*a*) to avoid mistake-making if this is possible without curbing initiative, and (*b*) to examine written work and have it corrected at the earliest opportunity unless there is some special reason for postponement. It may be well to postpone correction if the child cannot see his mistake. Sometimes a little delay enables him to correct it for himself. It is a useful thing for him to learn that often mistakes in written work can best be "seen" on re-reading the work the day after it has been written. Sometimes too the teacher may have planned to give the necessary information in a forthcoming lesson.

4. Use discretion in deciding which exercises can be marked in class, and which must have your attention outside class. Essays, for example, generally need to be read by the teacher out of class, whereas it is possible to mark many answers in one lesson if they consist of only one or two words each, and especially if they are the answers to *factual* questions given perhaps as a test of knowledge.

When the marking is done in class the teacher should of course keep a watchful eye on what is going on and give a helping hand where necessary.

If work is habitually marked in class, the books should be taken in for inspection occasionally to ensure that the marking is being kept up to standard. On taking over a new class, it is well to accept for the time being any scheme already in use and to modify it later if necessary.

The child is "a little conservative" as regards class routine and change often invites protests, difficult discussions and confusion.

Preliminaries or checking may sometimes best be done out of class, but often the marking can best be done by co-operation between teacher and child.

5. *Changing papers* or books for correction in class is customary in some schools. Each child marks another child's work. Objections can be raised to this procedure, but this is a case where the novice should take care not to interfere suddenly and drastically with any accepted routine in a class. She should, however, weigh up in her own mind the advantages and the disadvantages, and if she thinks a change desirable she can make it at some appropriate time. Some of the disadvantages are:

(*a*) the suggestion of untrustworthiness which sometimes underlies the procedure,

(*b*) the fact that children are as a rule rightly far more interested in their own work than in another child's work. This is shown in their efforts to see what is happening to their own answers at the very time when they are supposed to be attending to those of somebody else.

(*c*) the desirability that children should see only correct versions until the correct impression has been fixed in their minds. The fixation of the correct impression may be retarded by contact with a wrong one, or the mistakes made by other children may be imitated.

In view of such considerations it would seem wiser, if a check is required on the child's marking of his own work and the teacher cannot check it herself, to exchange papers only after each child has marked his own.

The answers of each pupil could thus be checked by somebody else, not as a safeguard against cheating but as a definite step in scientific method, namely verification. In this case the verification is by " external examination ".

As far as the actual *correction* of a mistake is concerned, obviously it is in the mind of the child who made the mistake that correction is necessary. The paper manifestation is only a sign of its existence in the child's mind.

The outstanding example of marking which is done by the teacher outside the classroom is *essay marking*. In marking many kinds of short answers the tendency is to look for factual exactitude without entirely neglecting style and form. In marking essays, however, the tendency is rather to be impressed by style and expression though gross factual inexactitudes or gross omissions may be noted. This difference of emphasis probably accounts largely for the fact that an essay marked by different experienced teachers has been known to get marks varying from 30 to 70 per cent. Also a teacher marking the same essay at different times is quite likely to give it very different marks.

The student will learn a good deal if she experiments with a few essays.

First she should read through them without examining them in detail. She should mark them on general impression as essays are so often marked, and then put them aside for a day or two. Then she should, without looking at the marks she has already given, re-read them, but this time she should keep clearly in mind the facts and the mode of expression she would like to find so that general literary attractiveness is not over-

marked. Comparison of the marks is likely to be interesting. If she can get a friend to mark the same essays independently the results are likely to be even more interesting and instructive.

After some such investigation she will be better able to use, with modifications to suit her own special requirements, the following suggestions.

Set essays with a clear purpose in mind, e.g. for general attractiveness or for facility of expression, or for exact knowledge of the subject dealt with. Mark accordingly. If some combination of these is your aim decide on your mark-distribution before you mark. It is often useful to read the essay first to get a general impression of it and then to look through it again for special points.

Model Answers are sometimes provided by the teacher. She should be quite clear regarding her aim: provision of a model may be educative or it may be a hindrance to education, depending on the choice of model and the way in which it is used. Imitation may sometimes be desirable. At other times it may disastrously discourage independent thought on the part of the child.

With this warning some suggestions are offered which the young teacher can modify to suit her purpose.

1. The model can simply be given to the children for comparison with their versions. This can be done either before or after the children's work has been looked at by the teacher. In the latter case she may or may not have underlined the parts which are to be improved, or she may or may not have put symbols in the margin to direct attention to special points. The child may then simply correct his own answer.

2. In some cases the model may be built up by the teacher, perhaps on the blackboard, with the help of the class. It is sometimes possible, e.g. if the answer is short, to have several models submitted by the children. The best suggestion, or the best parts of several, can then be accepted for general use.

3. One or two of the best answers given by the class may be read by their authors or by the teacher. Extracts from mediocre or poor answers may sometimes be read, or even (with discretion) the whole of a poor effort for comparison with a good one.

4. Sometimes it is useful for the class with the help of the teacher to build up a model for itself. An example is the building up of an acceptable form in which experiments done in science classes should be written up. Attention can later on be drawn from time to time to the model as required. Simple experiments are done first and the accepted form should have become routine procedure by the time the longer and more complicated experiments have to be written up. More time and effort can then be spent on the content. A certain amount of variation is desirable within the broad framework to suit different experiments, so initiative is not always to be frowned upon, though the standard form should be used wherever it is applicable.

Children are sometimes only too ready to accept without question a model given by the teacher. The writer still remembers vividly, and with great satisfaction, the tremendous impression her class once made on the English mistress by producing a batch of essays in which the Ancient Mariner and the Wedding Guest were invariably referred to as the A.M. and the W.G. The teacher had incautiously for brevity used the

initials on the blackboard when she indicated several possible ways of dealing with the subject set for an essay. She was unwilling to accept the abbreviations from the class. The class, on the other hand, accustomed to mathematical abbreviations, thought it an excellent idea.

The value of orderly and appropriate arrangement of work should be made obvious to the class with reference to special cases. They can easily see, for example, that inaccuracy in calculation is frequently due to muddled arrangement of figures. It is only through specific examples that we can hope to establish an ideal of accuracy, which can lead to accuracy in further specific cases.

So too by varied examples and specific cases the child should gradually learn to look on all his work as an artistic, as well as a scientific product, and to realize that the arrangement and presentation of a given piece of work should depend on their suitability in the given circumstances.

Marking the books outside class.

If the teacher takes in written work she usually underlines the mistakes. Then she writes in longhand the correct version, or gives the right version orally, or provides a "model" version for comparison. Even with older children this is sometimes the most satisfactory way of dealing with certain kinds of mistakes. Usually it is the quickest way, though it does not necessarily ensure that the child's mind is sufficiently active in the matter. The procedure should be varied to suit the occasion.

Sometimes the mistakes are of such a nature that only

the teacher can detect them. But often the child can do some of the detection. If, for example, a child is told that there are six mistakes on one page of work he can usually find some of them. If he is told the nature of them, e.g. that there are three in spelling and three in punctuation, or if he knows there are two in one paragraph and two in another, or if he is given a list of rules broken by the class in a particular exercise, he is still more likely to find them for himself—provided of course the work set has been well chosen and suitable for the child concerned.

The longhand comments which may be required for younger children, or for the early stages in a subject, may gradually be reduced and symbols take their place. A recognized system of symbols is useful and often appeals strongly to the children.

Symbols can be put by the teacher in the margin of the written work, e.g. "sp." for "spelling mistake", "p." for "punctuation", "g." for "grammar", "om." for "omission", "T.B.p.32" for "See your text-book page 32" and so on.

When the books are returned with the symbols in the margin, the class can be set to write in the correct versions themselves while the teacher goes round the class making suggestions and giving help to individuals where it is most required.

Sometimes even the symbol may be omitted in favour of some such procedure as mentioned above, e.g. the underlining of the error without the addition of a symbol to indicate its character, or the provision of a list of rules which have been broken by the class in this particular exercise, with a view to putting the children on the track of their own mistakes. In the latter case

the rules are incidentally revised. An advanced stage in the process of mistake-detecting is reached when the child is merely told that there are some errors in his work, or definitely told the number of these, and set to find them under supervision or in a group of other children.

Detective work of this kind is enjoyable and can be used in many ways in the educative process.

1. It can be used to ensure the child's own immediate and willing co-operation in the work of the moment.

2. It can help also towards the attainment of our more distant aim that by the time the child leaves school he shall gradually have learnt at least in some respects—

(*a*) To look at his own work with a critical eye, and see both its good and its bad points.

(*b*) To test facts or to suspend final acceptance of them and to learn new ones. These activities often require reference to libraries, dictionaries, encyclopædias. Sometimes they require the planning and carrying out of experiments.

(*c*) To know how to approach, and to consult living experts for special information. Children should be encouraged to talk to visiting teachers and lecturers and they should learn not to be too shy to ask questions.

(*d*) To become familiar with, and at home in, the world of books and libraries. Besides learning to check his own work as mentioned above, and to rely on himself in many cases to find means of putting right his own mistakes by verifying facts and seeking out new ones, he may learn to love books and reading in general, and thereby extend not only his ability to solve his own problems but also to enjoy reading for other reasons.

3. It provides the child with chances for initiative and for co-operation with the teacher and with other children. Groups of two or three children are likely to form naturally, or the teacher can arrange small groups of "detectives". Some members of a group make one kind of mistake, others another kind, and co-operation and mutual aid can be encouraged.

It is only gradually that a child can become independently able to find his own mistakes and correct them. He may be encouraged along some such lines as the following.

At first a great deal of help is given, and the amount is decreased as occasion and the child's development allow.

Training is gradual, proceeding from location of errors by the teacher and precise instructions to the child for their correction, to a mere indication that mistakes have been made and are to be sought, found and corrected, by the child with a minimum of help from the teacher.

At first the teacher points out the mistake to the child and helps him to correct it, as in the case of a small child learning to write simple words.

While he is still very young he can be told where the error is and what kind it is (e.g. spelling error in line one). Later he may be told *either* the place *or* the kind of error, but not both. Later still he might be told that there are certain errors (perhaps three on one page) to be found and remedied, and he should be allowed to find and remedy them for himself with help from the teacher only when really necessary.

Practice in the *detection* of errors should go hand in hand with the correcting of them. Both should go with

training in methods of finding new facts and checking and verifying old ones. Children should sometimes after solving text-book problems be allowed to look up the answers for themselves, and look for their mistakes themselves if their answers are wrong.

They should learn to find different ways of checking their answers in different circumstances.

(*a*) They might, for example, do the same calculation in mathematics or physics by two methods and compare the results;

(*b*) they might appeal to calculation to *verify* the results of an experiment or of observation in physics or chemistry;

(*c*) they should check their answers by an appeal to common sense.

In arithmetic it should at once be seen that if the answer to a question about the number of boys required to prepare a cricket pitch in so many hours works out at, say, $6\frac{1}{4}$ boys, there is something seriously wrong.

Too much should not be expected from young or dull children as regards "corrections" in their exercise books. *Different* degrees of help from the teacher should be forthcoming, for some children need more help than others and for a longer time. Even bright children have a good deal to learn before they can easily and profitably use answer-books, text-books, encyclopædias, dictionaries, other books of reference, libraries, "fair-copies" and so on. It is only gradually that they reach the desirable level. The aim is the development of an independent self-reliant attitude, which will enable the child by the time he leaves school to rely on himself to see and correct his own mistakes rather than rely on having them pointed out explicitly by others. He

should, of course, remain willing to accept help and advice from other people.

Remedial Work.

There is something else of importance to be considered even after errors have been detected and corrected, right substituted for wrong, and the principle involved understood by the children. This is the question of remedial work. Additional exercises, in the corrected form, are often necessary to make sure that the old impression has been wiped out and that the new one has effectively taken its place.

Every teacher knows how children can go on making the same mistake lesson after lesson, just as every student knows how she herself can go on making a mistake in practice long after she knows she is wrong and desires to do right.

A remedial "follow-up" is necessary. Right impressions should be fixed by repetition, and where possible the repetition should occur in a variety of circumstances.

It would seem superfluous to advise the student to "follow-up" intelligently had not the writer seen many cases of unintelligent follow-up. Subtle cases are more common than glaring ones, but here is an absurd one which was actually observed. The student told the child to write out the word *their* ten times because he had written the word *there* in a sentence where he should have written *their*. If the child had misspelt *their* as *thier* then the student's remedy might have been effective. But in this case it was practice in the correct *usage* of the word *their*, and not practice in its *spelling*, that was required. The child might profitably have

been set to write such sentences as, " The books are theirs ", " The books are there on the table ", " Their books are there ". After practice of this kind the student might have set a number of missing word sentences for the child to show that he could now use the word correctly, spelling and all. Alternative-response exercises would also have given him practice in applying his knowledge, e.g. he could have been given sentences like—The boys were not $\frac{\text{there}}{\text{their}}$ but some of $\frac{\text{their}}{\text{there}}$ sisters were—with instructions to strike out the wrong word.

Another case is that in which a boy used in an exercise the word *putten* instead of *put*. The word " putten " was in common use locally. The teacher asked the class what was wrong with the sentence as given by the boy. Another boy is said to have explained, " Please, sir, he's been and putten putten when he ought to have putten put ".

Certain kinds of mistakes crop up so often that after a few years a teacher ought to have a good idea of the subjects or topics where it would be useful to have cyclostyled copies of remedial exercises.

Another suggestion, which she may find useful, is that children can keep a record of their own errors, and their lists can be used at odd moments in various ways. The remedial exercises can be performed at intervals. This is better than doing a great deal once or twice only. It is easy to introduce remedial work incidentally. As regards spelling, for example, the teacher can take a few books from time to time when there are a few minutes to spare at the end of a lesson and the whole

class can practise the corrections found in the books. Incidentally, this plan gives an additional check on the way in which the class is marking its books. She can, of course, now and again plan to devote a whole lesson, or a substantial part of one, to remedial work. She should introduce variety to make it as interesting as she can.

Spelling mistakes should be indicated as a matter of course in all exercises, and the children should realize that such mistakes should not occur in any subject, whether it is labelled " English " or not. One aim in all teaching is that pupils should learn to use effectively their mother tongue, since this is a tool for communication in all subjects even though in some lessons it is a " knife and fork study " and not as in English lessons a " dinner study ".

Whatever her subject a teacher is concerned in procuring clear expression of ideas in words, and to that extent is involved in the teaching of English. Teachers have a special duty towards each other where their subjects overlap. Each teacher could contribute towards a common list of errors-met-in-class kept available in the common-room. The form-mistress might be willing to keep it up to date for her own form. All could refer to it from time to time and act appropriately in class. Children would thus be encouraged to feel that, though separated in school for convenience, all subjects are inter-related, history for example with geography, geography with science, science with mathematics and so on.

Weaknesses in qualities such as writing, spelling, neatness, concern all teachers and might well be a matter for united attack.

Choice of Written Work.

Written work should be looked on as overlapping, supplementing, and being supplemented by, oral work. Each should be a complement to the other. A *balance* between oral, written and practical work should be attempted so that each can make its own special contribution in the education of the child.

In every class we find children who are good at one kind of work and relatively poor at another. These differences should be recognized and respected. At the same time all children need practice in the various kinds of work, and there should be ample opportunity and encouragement for children to develop abilities to talk, to listen, to do, to write, to read, etcetera, at least moderately well if they are to leave school reasonably prepared for life.

Besides aiming at a balance of oral, written and "practical" work the teacher should select her questions carefully in each kind of work. Easy questions are suitable for young, dull or backward children of any age and for older bright children at the beginning of a topic. They are useful for such matters as practice in style and form, and for testing knowledge of facts. Hard questions with short answers should not be excluded though they are more suitable for bright children or for advanced work.

Thought should be given to the place for written work. There are good and bad places for written work in each lesson, and in each scheme or series of lessons.

Before a lesson, *study questions*, for which the children seek and write answers, may be used as a means of preparing the children's minds for the work to come.

Again, study questions may be very useful at different points throughout a lesson, or a break may be made at suitable points in a series of lessons while the children collect the information required for further progress in the scheme of work.

During a lesson breaks are often advisable in the presentation of material so that newly gained knowledge may be driven home and emphasized, perhaps by repetition, perhaps by application to new problems.

Written work is often suitable at the end of a lesson (or at the end of a section) to make the knowledge more usable and of wider application. It ensures that the learning is not mere parrot-like ability to repeat words without an understanding of the meaning behind them.

During the lesson, and often at the end, *a test* may be made of the extent to which the children have understood the work.

At whatever point in the lesson written work is given the teacher should

(*a*) Have a clear *immediate aim* in setting a given piece of work. It may be to introduce, clarify, or revise material. It may be to connect several portions of work and to get them into perspective. It may be to practise hand and eye, or a rule, or a method of procedure. It may be to cater for and direct acquisitive tendencies or curiosity or some special interest; to encourage initiative, e.g. in finding out methods of solving problems and obtaining correct answers to questions and in deciding on the form in which the answer can best be presented.

(*b*) Keep her aim in mind while the work is being done in class and also when it is being corrected. Otherwise much time may be wasted

even if both children and teacher are busily occupied during the lesson.

For instance—to give some simple and obvious examples:

(*i*) The making of drawings and diagrams in botany and other subjects, though essential, can easily spread over a disproportionate amount of a lesson-period unless the teacher is wide-awake to her purpose in setting such exercises.

(*ii*) The child must learn to write words and sentences correctly. Some lessons may concentrate on this, using material which is interesting but not difficult to understand so that attention is not diverted from the task of writing correctly. In such a case a good deal of the lesson-time can legitimately be devoted to copying a question from the blackboard. On the other hand if the aim of the lesson is the correct answering of "fact questions" or practice in fluent composition, or development of arithmetical skill, then the writing process is for the time being of secondary importance. It should further the primary aim and it should not distract attention from that aim. In such a case the class should not be required to copy questions laboriously from the blackboard. It might be asked instead to read the blackboard questions, and to write the answers only, carefully numbering them. Or cyclostyled copies of the questions might be provided: children like to have their own question papers.

The teacher should have a specific immediate aim clearly in mind. This is essential. In addition, however, she will, as a good citizen, have behind all her

work wider, more general aims which will influence her choice of work for her class.

When you find yourself using phrases like "teaching the child to think", or "developing the child's personality", stop and ask yourself what you mean by them. Other questions will no doubt follow, such questions as "Do I know how I myself think?" and "Do I know how I teach children to think?" If you can answer these questions to your own satisfaction it only remains for you to see that the questions you put to your class and the exercises you give them to do help towards your aim.

But if, as is more likely, you are dissatisfied with your own answers to such questions, you should set about finding more satisfactory answers. You will not find this easy, but the attempt is well worth while.

The alternative is to muddle along, and indeed some teachers never get clear in their minds the inner meaning of certain catch-phrases such as those mentioned above and others like "developing the spirit and methods of scientific research". In unguarded moments they may use such phrases to describe their aims in education, or accept them as descriptive of what they are doing in school. Fortunately the methods and material employed in a more or less vague attempt to satisfy the more or less vague aim are often fulfilling some useful purpose of a more obvious kind. They are sometimes teaching the children to think effectively, but it is often a hit-or-miss method of doing so. Exercises and questions which achieve such an aim are also achieving more immediate and less vague aims. Unless they are doing so they should only be used after considerable thought.

Make written work as *interesting* as possible without losing sight of the aim in setting it. Encourage initiative in yourself in the search for, and in the invention of, suitable exercises; exercises which will achieve your aim and at the same time be so acceptable to the children that they will put their best efforts into the work. It is wasteful to set dull work when interesting work involving the same principles or achieving the same purpose can be found.

In choosing written work with a definite aim in mind make use of your knowledge of the child-mind. Remember such characteristics as love of activity and love of exploration, pride in ownership, self-assertiveness, love of praise, and other human attributes. Remember, too, that at some stages of development certain kinds of activities are welcomed which at some other stage might be irksome if not intolerable; repetition and drill work for example. Take account also of the truth that children, though in many ways alike, are not merely representatives of the human species at a certain stage of development. Each child should be looked on as a distinct individual, with his own way of looking at things and of dealing with them. If the needs of all are to be met and the interest of all maintained, it is essential to provide a great variety of questions and exercises.

There is nothing to equal the teacher's own observation of the actual behaviour of the children she teaches. This observation combined with her knowledge of psychology is invaluable. She should notice the activities they choose when allowed to please themselves. She should compare their school exercise books with their out-of-class artistic, scientific, arithmetical, literary

or constructive activities. They persistently draw or construct, produce a magazine at home, keep long lists of books they have read, engines they have seen, or cricket scores they have collected. They keep their stamp-books in order, enact transactions with their friends, keep records of fish they have caught, and so on.

The teacher should make use of this first-hand knowledge.

The practical problems which the child finds in his out-of-school life and environment and wishes to solve can often be used in class. The appeal is immediate. It is necessary, of course, to go beyond these immediate interests, and to base on them problems and exercises of interest which are not yet within the child's experience. New problems should aim at widening his interests and his experience and preparing him for solving problems in the future. They should also aim at facilitating hypothesis-making which is so important in reflective thinking.

In a large class both the freedom of the individual and the needs of the group must be considered. So, too, must the teacher's personal ability to cope with individual work. But, sometimes at least, the child should be allowed to suggest relevant work and to choose the form in which he will present the finished product, e.g. in writing, drawing or handwork.

A box for questions and suggestions sometimes gives the teacher additional useful ideas of the interests of the individuals in the class and it is sometimes possible to use the children's own material and questions not only without serious interference with the teacher's own scheme but actually as an aid.

Variety in substance and form of questions and other

kinds of written and practical work help to make it interesting. The teacher should encourage initiative and ingenuity in herself, as well as in the children, as regards planning questions and in the means and methods of answering them.

The following are some of the varieties of written work in current use. Teachers usually make their own modifications to suit their classes and topics.

Essays are essential. In many subjects (e.g. in history or English) they may test more adequately than anything else can the extent to which the subject-matter has been grasped and, in particular, how far it has been related to other relevant matters. Besides, the ability to express thoughts clearly and beautifully in a continuous narrative is so important that it would be foolish to rely exclusively on short answers even when our main aim is fact-learning and fact-reproduction.

Some questions should require one-word answers, some a sentence, some a paragraph, some an essay. Both short answers and the essay type of answers have their special values and their special limitations. " Completion-form " questions need not be limited to one or two word answers. Half a story might be given for completion or a sum might be given which is already partly worked.

Essays, compositions, short stories, plays, etc., can sometimes deal with real, sometimes with imaginary situations. Some suggestions follow:

(*a*) Pretend to be a farmer (dressmaker, child of a miner) in some special period or place and describe your own (or your father's or mother's) life.

(*b*) Summarize a newspaper article which has been read aloud, e.g. for older children a world-

affairs topic, for younger children, some interesting home event.

(*c*) Write a short story around the topic of (*b*) above.

(*d*) Give an account of some natural law that has been studied in class, or imagine some such natural law ceases to work and describe in essay, play or story form some of the effects.

(*e*) Write an essay on some job or occupation. Near school-leaving age this should be realistic and should contain a good deal of information about the advantages and disadvantages of such a job. It could make use of notes which had been collected beforehand.

(*f*) Similar exercises can be given on a page or chapter of a book which involve outlining, abstracting, reflective thinking, memorizing and so on.

(*g*) Practice in summing up can be given by making notes at the end of a lesson, or in a connected account from main headings in any subject.

A series of short questions is useful in many ways. Besides providing variety for all, it encourages children who are not good at giving long answers. A great deal of ground can be covered, as regards facts, in a short time. Short questions are often stimulating and can be fitted into spare times of little use for other occupations. The answers may be one word, a few words, or merely the underlining of the appropriate word in a list of words supplied.

Children can make short questions for themselves or for the class. One half of the class can prepare a set for the other half. Or each pupil can make four or five questions on a given topic and all the questions can be

given to the class. If necessary, the teacher can choose the most appropriate. If each pupil writes his questions out once, the papers can be exchanged. This is a good way to revise work and the devising of questions has a definite educational value.

Questions requiring short answers can be used to test the children's knowledge of definite facts. The answers are easily marked with a high degree of exactitude and conformity between different examiners. The questions can be cyclostyled, written on the board or read out, according to circumstances. If cyclostyled so that each child can have a copy, the class may merely be required to tick off the best one of several suggested answers for each item of the test. Variety is easily introduced. For example, instead of having alternative answers provided from which to choose, the class may be required to find for themselves one or two words in answer to each question.

When the test is finished, the teacher can read out the correct answers or call on each of the children in turn to give an answer. Every now and then five or ten minutes of a lesson can be profitably spent in some such way.

The answers may be one word, a few words or merely the underlining of the appropriate word in a list of words supplied. Some of the words supplied may be inappropriate, or they may all be appropriate but some may be more suitable than others, and the "best answer" must be picked out.

Statements may be given, some true, some false, and the children asked to underline either the word *false* or *true* as they think appropriate. This is sometimes called questioning of the true-false form.

Completion-form or *missing-word* form may sometimes prove useful. Words are omitted in a sentence or paragraph and have to be supplied by the children. This device can be used in many subjects, e.g. in languages, science, etc. The missing words might all be nouns or verbs. Sentences like " Her gentle voice was like . . ." and " The storm raged like . . ." might be given in English lessons. In science numbered specimens might be given for identification (e.g. drawings, flowers, slides, gases, solids) and one word (or more) required on slips of paper numbered appropriately.

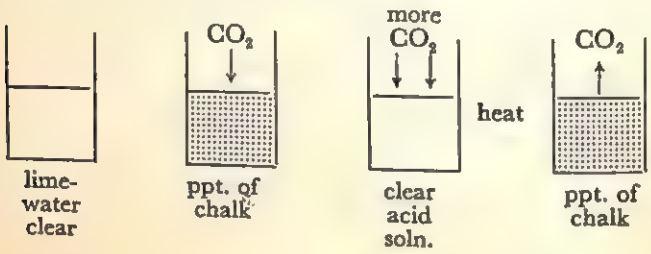
Exercises in collecting and keeping records are easily provided.

Great variety is possible here too. Notes may be made on, or from, books, lectures, etc. They may be made in preparation for essays or speeches, or merely as a record of work done or facts in which the children are specially interested. They may take the form of a log book for a journey or timetables of discoveries. They may be graphs of progress, or targets, similar to those used in playing darts, may be used to record progress. The class can keep its own records, and individuals can compete against their own best scores.

Diagrams, maps, models in plasticine and sketches are of great value in most subjects and should be freely used. An outline map of the world on which a child marks for himself the capitals of different countries gives him something he cannot get from any simple description. Sketches, for example sketches of costumes, as marginal illustrations to compositions, plays, history or geography answers, should be encouraged, and children should

learn the value of a combination of pictorial and verbal methods of answering questions.

Diagrams, tables, etc., should sometimes be given and an explanation or interpretation of them required, e.g. Explain the following diagram:



It is necessary to point out the danger of wasting time on diagrams, drawings, etc. Interest should be directed to the important points. It is easy to allow work of this kind to become an end in itself in cases where it is intended to be only the means to an end.

Two examples will illustrate this point.

(*a*) In a lesson on levers a truck as well as a number of beautiful wheelbarrows and nut-crackers were drawn on the blackboard by a student with a gift for rapid drawing. The children were entranced and as soon as they were given some arithmetical problems on levers to solve, with the instruction to make a diagram, they eagerly set about drawing wheelbarrows and spent a totally disproportionate time on these.

(*b*) In a lesson on covering the floor of a room with carpet and papering the walls the teacher provided a sketch. One child was found long after the lesson had begun still puzzling over the diagram. She said she couldn't find out how to get into the

yard from the living-room! Another child became interested in the pattern on the carpet shown in one of the rooms and the idea of calculation, the important matter from the teacher's point of view, was thrust into the background.

Study questions of different kinds add to the variety. The children can be set to make up questions and write answers to them in order to bring out the vital points of some piece of work, e.g. a chapter in a book. In this case it is sometimes advisable for the teacher to see the questions before the child spends a great deal of time answering them.

The teacher can prepare questions on a given piece of work. Each child, or small group, then answers in writing one or more questions, and teacher and class may then combine the answers to make a summary or revision.

In exercises requiring the learning by heart of prose or poetry, a good deal of choice should be allowed and individuals who have a strong dislike of this kind of work ought to be provided with another kind lest compulsion spoil the chance of later appreciation. But few children react unfavourably and, of course, many revel in learning long poems or long pieces of prose.

Study questions provide an opportunity for co-operative work. For example, the children may work in twos and threes and write a joint account. Or they may work together on some mathematical problem in preparation for a class lesson. It adds to the interest if each group has something to contribute.

Finally it should be mentioned that study questions as well as being enjoyable, and of immediate use, should be an aid to increasing the children's vocabulary and

to developing the habit of reading and of referring to books for information.

A combination of several subjects or several methods gives scope for ingenuity in providing useful and varied written work.

Different subjects may be connected as in the following exercises. The children may be asked to

(*a*) Write a story or play or poem about some event in history and illustrate it by a sketch.

(*b*) Write a letter to a foreign friend in his language.

(*c*) Solve certain easy arithmetical problems in a modern foreign language.

(*d*) Make a drawing or map of the world (or some part of it). Paste this on thin cardboard. Cut it up to make a jig-saw puzzle (England into counties, Europe into countries, the U.S.A. into states). Put it together again. (This revises the topic.) Exchange jig-saws with other children for solution.

(*e*) (i) Keep a vocabulary book, e.g. in French, German, English, botany. (ii) Collect words which have the same meaning in different languages or words which are the same or similar in different languages but have a different meaning.

(*f*) Solve a mathematical problem by two methods and get the same answer.

(*g*) Write an equation (i) using chemical symbols and (ii) in words to give an account of the same reaction.

(*h*) Find a paragraph in the daily newspaper which uses certain words which have occurred in class (e.g. words wrongly spelled or new words). Write out the paragraph. This gives practice in spelling and writing, and in using the words in their context.

The student ought to be able to think of many examples for herself: those given are intended only to indicate some of the possibilities.

Some Special Uses of Written Work.

In addition to the many uses which oral and written work have in common each has special uses of its own and certain special limitations. Each should be carefully chosen in relation to the other. This point should not be forgotten entirely while the advantages of written work as indicated below are being considered by the student. Otherwise she may fail to maintain a proper balance of the two.

1. Written work gives an opportunity to all children in a large class to participate actively in the work. Obviously it encourages those who are more expert with pen than with tongue. But it is useful also for those who prefer to talk. It discourages certain kinds of slackness and shallowness in them, and encourages them to practise and improve their lesser ability to express their ideas in writing.

As regards those who do not so readily as others grasp and respond orally to an orally expressed question, whether it be because they are slow, or shy, or nervous, or for whatever other reason, written work provides them with a chance to show what they can do through another medium of expression. The quality of industry can show itself and be rewarded. Self-confidence may be established where it is lacking and all-round development may be helped by the increased self-confidence. It has been claimed that this in itself may cure even such specific defects as stammering.

It is often *one* factor in cure and even where it does not cure it is often helpful.

2. In oral work all are compelled to attend to the same matter at the same time and for the same length of time. In written work individuals have more chance to work at their own rate and to give their attention where it is most required. Individual difficulties can receive more concentrated attention.

3. Written work gives teacher and child more latitude and freedom in the choice of work to do, and in the form the answers can be allowed to take.

Children put a great deal of keen work into tasks of their own choosing, and often interesting and varied choice of work can be allowed within certain limits. This will, of course, depend on the ingenuity of the teacher, but observation and reading should give her many hints. For example, when she is devising a number of questions and exercises for a given class she can write special questions on special cards for special children or special groups. She might write easy questions on blue cards, difficult ones on pink and intermediate ones on white. Then the child, though given a certain amount of choice, e.g. any blue card, can be restricted to a choice of suitable questions. Also an exchange between the children of cards of similar difficulty is easy to arrange. Children's own questions should be accepted when these can be linked up satisfactorily with the work in hand. The method of answering can be varied too, e.g. a verbal account may be asked for or the instructions may allow the child to choose his method of answering, verbal, concrete, diagrammatic. Presentation of answers in diagrammatic or sketch or model form often conveys an idea

more clearly, accurately and quickly than a long verbal description. Sometimes several forms can be used in one answer where such a combination makes for clarity.

4. It is only by writing that one can learn to write and written work is the means of achieving skill in writing. Once the skill is to some extent mastered it is the medium by which the child gains practice in skilful expression in writing and in the setting out of answers suitably.

5. Written work has qualities of tangibility and permanency lacking in oral work.

Everybody takes pleasure in producing something which can be admired, shown to others, noticed or praised by others. The teacher can by skilful and constructive comments guide along educational channels the child's self-assertiveness, acquisitiveness, constructiveness and other qualities. A student provides an example. She writes, " One day in class I wrote down a few French words I had learnt outside the French class. My French teacher was interested and encouraged me to collect lists of French words and their equivalents grouped according to subject. In the following summer holiday I produced about 300 pages of work and my French vocabulary improved remarkably. I did it because I enjoyed it."

Permanent records of school work are useful in schooldays as a record of work done and of individual development. In addition, they often prove very interesting to the individual himself in later years especially perhaps if he becomes a teacher.

6. Written work widens and deepens the teacher's knowledge of her pupils and of their progress in a

subject. Occasionally the mistakes made by children may encourage the teacher. Adams[1] wrote of French teaching, "When my pupils make the same kind of spelling mistakes that are found in French children's dictations I feel that all is well." Also written work may show up special abilities and special interests which the teacher can use in future work.

Usually, however, mistakes are not so encouraging and for the most part reveal unwelcome defects and misconceptions. Some of these would easily escape detection in oral expression. Drawings and diagrams are sometimes revealing.

Adams[2] gives an example of a peculiar misunderstanding which was brought to light when a class of training college students were making a drawing of Robinson Crusoe's tent from the description given in the text. Two or three drew a Union Jack lying flat upon the roof of the tent and in explanation referred to the text which states that the roof was loaded with "*flags* and large leaves of trees, like a thatch". If the drawing had not been undertaken this misconception would not have been discovered at the time, and some unfortunate student might only have realized it when to his embarrassment his class of children pointed it out, or asked an awkward question.

6*a*. Written work sometimes reveals wrong methods of study. An extreme example is that of an Eastern candidate, devoted to learning off long passages of his text-book by heart, who began his examination script with the words "As we have seen in the last chapter"

[1] Adams, John, *The New Teaching* (Hodder and Stoughton, 1919), p. 100.
[2] *Herbartian Psychology* (Heath), Chap. IX, p. 217.

7. Written work can be used to show the different steps in the process of thinking. It can give practice in logical thinking, and in problem-solving at the thought level. It is specially useful when the problem is a complicated or lengthy one.

The more permanent form enables the child to examine his work with a critical eye. The presentation in written form encourages the testing of facts and conclusions, which in turn leads him to study methods of investigation, use of books and other sources of information.

7*a*. Apart from, or in addition to demonstrating scientific method in thinking and problem-solving, written work is very useful in that it is possible to arrange on paper a large body of facts which could not be well organized orally because of their difficulty or number.

After arrangement on paper many facts can readily be used for further work, oral or otherwise, e.g. as narratives or for plays, speeches, imaginary presentation of a bill in Parliament, questions and answers with supplementary questions in Parliament, or for the conduct of a law suit in which witnesses are examined and cross-examined.

There are additional uses for written work in class. Some of these are not to be despised on occasion even by experienced teachers.

8. Written work can be used as stop-gaps when there are some minutes to spare as, for example, at the end of a lesson period. A few oral questions with one-word answers to be written by the class, a drawing to be made quickly, a little revision, an example of some arithmetical rule to be worked, a competition, a short test,

often give enjoyment and profit. The teacher who keeps handy a list of odd jobs which need to be done sometime can often fit in a useful piece of work in this way.

8*a*. It can be used to keep restless or inattentive children from disturbing others or from employing their time unprofitably.

8*b*. It gives quick children work to do while waiting for others to finish individual work which is necessary before all can proceed together with class work.

Written work can thus be an aid to discipline and class order. It can help to give variety and to keep everyone busy and out of mischief—happily and quietly occupied. It is desirable that even when used primarily for this purpose it should also be as useful as possible in more constructive ways. The alert, prepared teacher will have at hand a supply of suitable questions and tasks which she can produce at a moment's notice and which will further her educational aims.

In order to make the most of written work a teacher ought to bear its purposes in mind while it is being done in class.

She should go round the class while the work is being done and get an idea of how each member is getting on. She should know which children are likely to make serious mistakes, and she can try to give them individual help before they have gone far astray. This can be done in a low voice so that the others are not disturbed. She can quietly put right mistakes or misunderstandings of instructions in individual cases. If a large number of children are making the same mistake, it may be necessary to stop the work and modify or repeat the instructions.

This supervision while the children are busy with written work gives the teacher one of her best chances of helping an individual, giving him confidence, spurring him on, encouraging him to persevere, letting him feel that the teacher is interested in his work.

Children who are slow in starting can be helped (without flurry), and so too can children who work slowly even when they have started. If the slowness is due to some firmly fixed inherent or acquired quality of mind it may be impossible or inadvisable to try to make a child hurry. If it is due to a desire to produce superlatively neat or accurate work he may be given a better perspective. As regards written work the teacher should be clear in her aim, e.g. what degree of neatness does she want in an answer to an arithmetic question?

In spite of help which she may give to the slower children there will always be quick workers for whom she should have in reserve a supply of additional work so that they can be kept happily and usefully employed.

It is well to hesitate before interrupting the whole class after it has settled down to work. If satisfactory instructions have been given and careful preparation made, there should rarely be any necessity to interrupt.

The children's behaviour after they are supposed to be prepared to carry on without interruption is often illuminating to the thoughtful observer.

CHAPTER IX

SOME USES OF QUESTIONING

MANY uses of questioning which have been mentioned in other chapters can be classified under four headings.

A. To create, develop and maintain a good emotional and intellectual atmosphere as well as a high level of effort in the classroom (pp. 142–150).

B. To consolidate the information and skills the children have acquired, and to make both as widely usable as possible. Drill fixes. Application in a variety of examples and situations prevents fixation in too narrow a field. It corrects the disadvantages of having knowledge and skills confined to the narrow field in which they were first learnt (pp. 151–155).

C. To explore, and to test the results of the teaching and learning. Questions and answers can be very useful information-getters and information-givers for both teacher and taught (pp. 155–166).

D. To give children some idea of, and practice in "the art of thinking" and in sound methods of problem-solving in different subjects (pp. 166–183).

A. Good questions can be extremely useful in creating, developing and maintaining a satisfactory atmosphere in the classroom. Tney can play a large part in ensuring that the work is (1) emotionally satisfying, (2) intellectually stimulating as well as

satisfying and (3) carried out in satisfactory disciplinary conditions.

(1) As regards the *emotional* atmosphere, it is particularly important, and normally fairly easy, for the teacher to make question-and-answer procedure enjoyable to the children.

In addition to the immediate good effects of pleasureable activity in keeping boredom at bay, and in directing the child's attention to beneficial pursuits, enjoyable classroom activities help to determine the child's attitude to work in general and may greatly influence his outlook on life. This is true of unusually shy and other poorly-adjusted children no less than of the tougher-minded ones.

Oral work is desirable from early schooldays and readily lends itself to question-and-answer procedures. In the classroom the child should progress from the ability to use simple words and sentences to continuous narrative, and the orderly arrangement of matter in longer answers, as, for example, in the making of a speech, the preparation of which may need written as well as oral treatment. Class discussions can be very valuable and here questions and answers are indispensable. If we give a child plenty of opportunity and encouragement to ask as well as to answer questions, and to attempt to put clearly his own ideas, we may expect him to develop facility in, and enjoyment of social intercourse, and easy and wide, though controlled, directed and purposeful, discussion of serious questions with his fellows. There is immense satisfaction and inestimable value in being able in adult life, un-self-consciously and without undue emotion, to express one's views clearly and forcibly.

(2) Well-conducted question-and-answer methods contribute to a good atmosphere in the class by their *stimulating and challenging* effects. They are enlivening and invigorating. They demand activity, mental or physical, and often require the formation of a plan of procedure on the part of the child. They suggest lines of thought and action. Children who are asked an interesting question become keen to hear, or to think of, anything which will help them to find the answer. Once the "problem-attitude" and the desire to find out something are aroused a flow of energy is released which makes work on the subject pleasurable and far more fruitful than it would otherwise be. A surprising amount of reading and spontaneous investigation often result from a few stimulating and challenging questions with any hints that may seem necessary as to where and how the answers may be found for the seeking.

Whether a question is easy or difficult, it may be stimulating if it is suitably introduced. The teacher may say, "Here is an interesting question I was asked. It's not an easy one to answer. Write it down and see if you can find the answer. If not, I will tell you." When the children have tried and failed or partially succeeded, provided the teacher guards against complete discouragement, they are often eager to hear the answer and more able to appreciate it when it is given to them. At another time the stimulating question may be an easy one. A teacher about to discuss some plant, for example, and compare it with one already studied might begin, "I am going to describe to you a plant. Listen carefully and see if you can identify it. Don't shout out and don't make up your mind too quickly. Go on listening after you have

decided, and see if all I say fits in with what you think." The children listen attentively and have the answer ready when asked for it. An active and receptive frame of mind is induced both emotionally and intellectually. Incidentally in this special case the children are being encouraged to test their own snap decisions. Incidentally, too, a certain amount of revision is being done.

The story of Archimedes' golden crown and how he " saw " in his bath the answer to his problem and rushed naked into the street shouting, " Eureka, Eureka," is unfailing in its stimulating effect on a class of children about to be introduced to The Principle of Archimedes. They want to find the answer or to test it for themselves, and the necessary activities get a good start.

A question put at the end of a lesson, with the suggestion that the children can think it over before the next lesson, is sometimes very stimulating. They may be told that partial answers will be as acceptable as a complete one. Then, at the beginning of the next lesson, the children's answers can be compared with those of the text-book or the teacher. Study questions can be used in this way too. A large one may be divided into smaller parts for solution by individuals or small groups.

In her efforts to get a good atmosphere in class, the teacher must not forget her aim in a given lesson. It is very easy to interest the class in side-lines and irrelevancies. In the following case, parrots, though somewhat irrelevant, were more interesting to a class of nine-year-old children that the spelling of " hear " and " here ", the subject chosen by a student for a lesson. She read aloud to the class the sentence, " Although the

parrot house was a long way off from here the children could still hear the birds ". She paused a moment and then asked, " How do you spell the first ' here '? " The question was met with blank looks and silence. It seemed to be completely irrelevant. The children were interested in the parrots not in the words. The student made a fairly good recovery. She said, " Now I will read that again. There are two words in this sentence that are pronounced alike, but spelled differently. See if you can find them and tell me how to spell them." The children easily found the words and the student then went on to the spelling. Other examples already mentioned are these: A child could not do a calculation which referred to a given plan of a house because she was trying to puzzle out how one could go from the living-room to the yard since no doors were shown. Another child was interested in the pattern on a carpet depicted in a plan, and became absorbed in drawing variations of it instead of calculating the amount of carpet required to cover the floor.

(3) The third general way in which questioning can often help to produce a good atmosphere in the classroom is through its disciplinary value. In discussions on teaching and education, the word *discipline* is used in two senses, namely, to indicate class-management or orderly behaviour in class, and to indicate the inner discipline of the child, often referred to as self-discipline. Briefly, they mean control from without and control from within.

(*a*) Control from without.

Questions are sometimes used with the express purpose of class-management, of ensuring and keeping control, of calling to order recalcitrant or inattentive

children, to encourage attention and discourage inattention.

Interruption of work for the purpose of asking disciplinary questions is to be avoided where possible. But the student may well ask, "If I know that a certain child is not attending may I not wake him up by asking him a question, whether it be 'What are you doing?' or a question about the work?"

The answer is that it may be right or wrong to do so, depending on the situation, the student, and the question.

The only rule one could safely state is that we should aim at getting on with the work in hand. It is better to allow some private inattention on the part of one child than to break the thread of a narrative, for example, and disturb all the others by calling attention to him. This applies just as surely whether the moment is concerned with enjoyment of a story or with a more purely intellectual process like an involved piece of reasoning.

Wordless disciplinary questions conveyed by gesture are often useful, and, with a little practice, they are easily asked. Most beginners tend to employ the more obvious, and usually less effective, verbal methods of recalling wandering attention, but even the inexperienced may quickly master some of the more subtle disciplinary accomplishments of the experienced teacher. A sudden glance, an interrupted movement, an almost imperceptible pause, a raised eyebrow, or the mere fact that the eye of the teacher remains fixed for a second or more on a particular spot in the room, may ask the question "What are you doing now?" or, "Are you listening?" far more eloquently, and control the situation far more effectively, than words could do.

A verbal rhetorical question can occasionally be used for this purpose during a narrative. As she asks the question the teacher looks at the child concerned. No answer is required and the teacher at once proceeds with the narrative.

It is true, however, that a well-chosen, well-put question can give variety to a narrative and often such a question is very valuable in many ways. A question sometimes hands over the lesson for a time to the class and occasionally a member of the class can carry on most effectively with the narrative. It is necessary to add here that when a narrative has become dull or tedious it may be better to abandon it for some other procedure. If only one child is inattentive, a verbal question may cleverly recall him to attention without disturbing the class. An example will show one way in which this can be done.

A student was describing in a geography lesson a stretch of interesting country. One child at the back of the room was restless, and there was a chance that those around him would be disturbed. After mentioning the height of the mountains, the student stopped suddenly and asked the child, "How high have I just said the mountains are?" He was instantly drawn back into sympathy with the lesson, and there was no more trouble with him. If the question had not been asked immediately after the teacher had mentioned the height of the mountains it is very unlikely that he could have answered, but now he could and did.

Supposing he had not been able to answer the question immediately after she had given the height of the mountains, what might she have done?

She might have asked another child to answer the

question or she might have answered it quickly herself. It would have been advisable to have a minimum of interruption and waste of time. Even if the inattentive child failed to answer, his attention would have been drawn to the fact that the teacher's own attention was not entirely on the mountain tops.

In some such way a warning or suggestion can be conveyed to one member of the class and only he and the teacher need know that anything has been wrong.

Though the culprit himself may be only vaguely aware of what has happened and may, as in the actual case given above, answer the question correctly by chance or by immediate rote memory in spite of his inattention, the question has achieved its aim and justified its existence if it has drawn him back to interest in the lesson without disturbing the whole class.

(*b*) Control from within.

To take part in answering and asking questions and to listen to others while they ask and answer requires self-control. When asking or answering, one must choose a suitable word or expression, and reject others. One must often choose the right time or the right place for a question or answer. In the classroom the longer and more difficult tasks are for the older children, but even the younger ones are having training in this respect. The older ones learn to persevere. They learn that hard continuous work, for example on a study question, can be extremely enjoyable. They may also make the valuable discovery that work, which is at first uninteresting and undertaken only from necessity, or because it is the means to some desired end, may become extremely interesting for its own sake and an end in itself.

Then in class-discussions involving questions and

answers the child learns that there is room for both individualistic and collective attitudes and opinions. He must learn to work with others whether he agrees with them completely or not. There is a disciplinary as well as a stimulating value in team-work, and in practice in co-operation with others. In group work individuals or small groups can work on different aspects of a problem, and later pool and organize their results. All contribute, and all are interested in fitting their own work into the whole. They learn the value of taking into account other people's work, other points of view and other methods of working besides their own.

Co-operative thought and action are of increasing importance in the life of man. Good relations are not always easy even between individual and individual. There are bound to be differences, disputes perhaps, between the members of one family, and between people working in the same office or workshop. Similarly all the individuals in any small community will not agree about everything. Committees are necessary and decisions even here are not necessarily unanimous. The minority bows to the will of the majority for the time being at least.

When we consider international relationships it is obvious that the situation is bound to be immensely more complicated and more difficult. The future of the world depends on the ability of the nations to co-operate. Part of the aim of education should be to fit children for the kind of life which lies before them and to give them experiences that will enable them to co-operate with others while holding their own independent views.

B. Questions and answers are very useful for purposes of *consolidation* (*a*) by drill, (*b*) by new applications.

It is often a disappointment to a young teacher to discover how fleeting an impression her best efforts have made. She finds, at the end of the lesson she has given so carefully, that some children are unable to answer what to her seem to be very simple questions. And to-morrow some of those who can answer to-day will have forgotten. It is not quite so bad as it sometimes seems, and the teacher may occasionally have the heartening experience of finding that certain facts have, with the passage of time, and without any deliberate revision, consolidated and clarified themselves in the mind of a child. She may rejoice when there are signs that this has happened, but she cannot rely on it happening in any given case. It is, as it were, a bonus, unexpected but all the more welcome on that account.

The fact remains that first impressions must be followed up by some form of repetition if full benefit is to be got from them.

Repetition is particularly necessary if facts, or skills, are to be made usable on demand. For example, in the lower school there must be much practice in reading and writing, tables, spelling, punctuation, construction of sentences and so on; and in the upper school, though education is not yet so successful in this matter, in good methods of prolonged reflective thinking. With practice a certain stimulus comes to be followed by a certain response without delay.

There are innumerable facts, and skills, which an adult uses automatically and without hesitation. It would be a handicap in life for him not to be able to make certain calculations, and not to know certain

facts without having to stop and think. Similarly, skill in the use of many tools, physical and mental, is either essential or a very great advantage in life. It is in the schoolroom that children are becoming experts in the use of pen and pencil, co-ordinating ear, eye and tongue in the ways necessary for good writing, good reading and good speaking. They are in schooldays learning how to use books and libraries, and they are learning good or bad methods and habits of studying and thinking.

For sure and good consolidation of facts and skills we need (*a*) plenty of *drill* to stamp in fundamental essentials, and we need (*b*) plenty of *practice in applying* the knowledge or skill to new situations. We need the fixity which drill gives, and we need the flexibility given by varied applications.

(*a*) *Drill* in facts and skills.

During the lesson there will have been a certain amount of repetition for the sake of clarifying and giving emphasis to the points which have been made. During drill, which is repetition of a more formal kind, further clarification and further emphasis take place. The value of drill from our present point of view is that it fixes facts and perfects skills, physical or mental. For the sake of brevity we will think mainly of fact-fixing by oral means. The student should consider for herself drill by means of written work, as well as drill of any kind in physical skills and methods.

Short and rapid oral questions and answers are useful for drill work. Questioning of this kind is easily made enjoyable and stimulating. Children, especially in the eight-to-twelve-year-old range, enjoy the activity it provides. The older ones are more capable of seeing it

as a means to a desired end even if they do not always find it so enjoyable for its own sake.

Oral questions which revise work come well at the beginning and at the end of the lesson. At the beginning, as well as revising, they may usefully bring to mind material which will establish a suitable foundation on which the new lesson can be built up.

At the end of a lesson, oral questions of the drill type can suitably carry on the process of the consolidation of facts learnt during the lesson. It is necessary to remember, however, that while a few minutes' rapid fire of question and answer can make an exhilarating beginning and a satisfying end to a lesson it may become tiring or boring. Experiments have shown that a number of short periods of repetition are more effective than a smaller number of longer periods.[1]

Generally at the end of a lesson, but not only there, a summary or a reproduction in full or in part of the substance of what has been learnt is desirable. The choice of matters for drill should to some extent depend on the difficulties of the pupils.

In drill and in repetition of subject-matter, we use methods which " tend to encourage the simpler mental processes, and especially that of memorizing " and we are concerned with " the more obvious results of thought processes and not the processes themselves ".[2] None the less the teacher must not lose sight of the fact that one of her most important ultimate aims in education, and one of the most difficult to achieve, is that of helping children to employ sound methods of thinking.

[1] See Valentine, C. W., *An Introduction to Experimental Psychology* (University Tutorial Press, Ltd.), Chapter IV, " Economical Methods of Learning ".

[2] See Wallas, Graham, *The Art of Thought* (Cape), p. 244 f.

If the summary and reproduction are done by means of a series of questions to which the pupils merely supply the answers the teacher should realize that the aim which is satisfied in this way is a limited one. Something must be done later to ensure that the children think over the material learnt, and that they apply it in new situations. Fact learning and skill learning merely provide tools for thinking; they do not necessarily result in good or useful thinking.

(*b*) *Application* of facts and skills in new situations.

Facts firmly fixed in one setting are liable to be of use only in that setting. If they are to be usable in a variety of situations they must not be too firmly fixed in a limited field. Children should be given practice in applying them to many different cases in varying situations. This should give a flexibility to their use in the future which could not be obtained by mere repetitive drill. We shall not go far wrong if we think of adaptability as a very important quality in an individual, as it has been in the development of mankind. It is important in life to weave our knowledge into an organized whole, but it is equally important to be able to detach parts of the whole and use them separately at will. A simple example will illustrate the point. It is one thing to be able to repeat the "eight-times" multiplication table, it is quite another to give at once without running through the whole of the table the right answer to the question "What is nine multiplied by eight?" to be sure of an automatic reaction "seventy-two" when in the middle of a lengthy calculation we need to multiply nine by eight.

The teacher's ingenuity, as well as the children's interests and suggestions, should be called extensively

into play in practising the use of facts learnt. Certain questions and tasks should link the new knowledge with the old; and certain exercises should look towards the acquisition of still further knowledge. There should also be "expression work" on the part of the child in which he is free to use the new material in his own way, and so make it more surely his own.

Revision.

This is involved in drill and application as treated above. Also, much revision is done incidentally in class work without having the name specifically applied to it.

Sometimes, however, the teacher deliberately concentrates on revising some particular fact or body of facts and then she should make the revision as interesting as possible. Revision is often thought of by the children as a dull affair, and not without reason. It need not be so. As a rule, incentives are not hard to provide. For example, incentive is provided if the child competes against some of his own previous results or against some form of bogey, or against results gained by other children in the class; or if praise is known to be obtainable for a good effort; or if the old material is used in some novel way and new and interesting applications of it are introduced or suggested.

C. Questions are *the* means of exploring and testing. They are extensively used for this purpose.

(1) The teacher uses them throughout her lessons and also in her *class tests*. (2) They are used in *standardized tests* to which the teacher resorts from time to time in order to test her own standards of achievement. (3) They are used in *external examinations*.

(4) They are used in *diagnostic tests* for remedial work.

(1) The teacher's own exploratory questions and class tests are constantly in use as contact makers and guides. They keep the teacher in touch with the children and give her information which guides her in teaching and helps her to guide the children in their learning.

At the *beginning* of a lesson, or course of lessons, questions and answers give the teacher an idea of what the children already know about the subject and their attitude towards it. This knowledge enables her to choose her details, and plan her line of approach and treatment so that the subject may appeal to the class as strongly as possible. The answers of the children should provide her with a basis on which she can build up her lesson and her scheme of lessons by linking up her new material with that already possessed by the children, and already called to mind by the questions.

At the *end* of a lesson, or course of lessons, questions test the teacher's teaching and the children's learning. They give the teacher an idea of what the children have learned and what use they can make of their newly gained knowledge. They sometimes reveal parrot-like learning where the children have simply memorized the material without understanding it. The question which is likely to do this is one which asks for the knowledge to be given back in a new form, "in your own words", perhaps, or in some new setting or application. A phrase or word may mean something different to the child from what the teacher intends it to mean. Children's "howlers" are sometimes due to teachers' lack of sensitivity in this respect.

The end of one lesson in a course can often make a good beginning for the next. A question asked by one of the children towards the end of the lesson is particularly useful if it can be given the answer, "That is exactly what we are going to discuss next day".

We must not overlook the child's point of view. Questions and answers are to the child himself a valuable source of information concerning his own progress. They make him conscious of his own errors and of the limitations of his knowledge, and may therefore render him more ready for correction and for the extension of his knowledge. We must remember the more positive value that they may show him his own power and ability. A clever or industrious child finds satisfaction in discovering how much he knows, and even a stupid, lazy, or careless one who discovers that he too knows something, is sometimes stimulated to greater efforts than if he is constantly being made aware of how little he knows.

It is of course not only at the beginning and end of the lesson that questions are useful to the teacher and the children as information-givers and information-getters concerning progress. They can be very useful at any stage for exploratory purposes when the teacher wishes—

(*a*) To test the effects of her own teaching, to get a clue to the reasons for her success or failure.

(*b*) To get to know individual children better.

(*c*) To keep in intellectual and emotional contact with her class; to see if the co-operation between herself and the class is satisfactory, to test what impression she is making on the class, what attention she is getting, whether the minds of teacher and

taught are or have been in touch, working along the same or similar lines.

(*d*) To find out what the class knows, and how well it knows it, especially when one step in a lesson depends on the preceding one, on the extent of the children's understanding of it, and of their misunderstandings; what points or sections need to be clarified, repeated, emphasized or further consolidated. Questions give clues which enable the teacher to focus attention where it is needed and prepare the ground for her future work.

(*e*) To find out the children's line of thought at a given moment, or their more permanent characteristics, their grasp of the subject, their quickness, their difficulties. The teacher is then in a better position to judge how they can be helped if they need special help in addition to the ordinary class treatment, or how the class treatment can be modified to suit their requirements.

For (*b*) and (*c*) particularly, the children's own questions as well as their answers to the teacher's questions can be very revealing.

Tests.

Short tests arise naturally in the form of a few short questions put at the end of a lesson. Longer and more formal tests also should achieve some "natural" and obvious purpose. The young teacher is likely to accept without much thought or modification the exact form of the traditional weekly or terminal tests common in schools. Here as elsewhere she should think about the matter and be ready to experiment and try out her own ideas, but with discretion of course, lest she get into trouble with her class or with other teachers.

Here are some hints which may be useful.

(i) Make up questions as the course goes on. Often during a lesson, or immediately after it, you will think, "That would be a good question for a class test". Jot it down at once in a special book or file.

(ii) When you come to set your paper you will then have at hand a number of questions—probably some short and some long. Review these and decide which of them can be used in this particular test.

(iii) Get your mind clear about the extent of the field you wish to cover, and what you hope to achieve by setting this particular test. Ask yourself questions about what kind of questions you want to include, e.g. Do you want to include questions which (*a*) will test mere ability to reproduce certain facts learnt in class, or (*b*) questions which will show you how far the class can apply those facts to new cases or in new situations or (*c*) questions which require reflective thought, or memory, or skill, content of mind, working of mind, or of body as in the case of manual and physical skills, or (*d*) those which require a high level of verbal expression. Frame your questions accordingly.

(iv) Note that sometimes a large number of short questions and answers give more information to the teacher in a short time than longer ones do. On the other hand they, by themselves, might encourage mere memory work to a greater degree than is desirable. It is wise to grade the questions in a series so that easy questions come first. The brighter children can dispose of them quickly and get on to the harder ones. The less bright children find they can do the early questions and are not discouraged as they might easily be if the hard ones came first. Also a child sometimes spends so

much time on a hard question that he has no time to show what he can do on others. The hardest questions should be sufficiently hard to test the brighter children properly, and the whole paper should be long enough to keep everybody occupied for the whole of the time allotted to the test. As a rule the children should know that the teacher does not expect everybody to finish the paper and that full marks are very difficult to get. This applies to papers which the teacher means to be real tests. She may decide on some other occasion to set a paper on which she expects everybody to get full marks. In such a case she might find it advisable to divide her class into groups and have different questions for each group, especially if the class is large or if the range of ability is great.

(v) Consider whether your paper is to be mainly for one purpose or for a mixed purpose. If the latter, it can usefully include a variety of questions ranging perhaps from one-word answers even to a complete essay.

(vi) Questions should conform to the requirements already suggested in the chapter on written work and elsewhere in this book.[1]

(vii) The difficulties involved in marking vary. The short question which asks for facts is easy to mark satisfactorily, but the essay is difficult to mark. As we have already pointed out, consistency and fairness are difficult to attain. Obviously it is much easier to say

[1] See also Hughes, A. G. and E. H., *Learning and Teaching* (Longmans), Chapter XIX, pp. 359–370; Wallis, B. C., *The Technique of Examining Children* (Macmillan 1930); Hamilton, E. R. H., *The Art of Interrogation* (Kegan Paul, 1929) (which contains excellent advice on Examinations and Mental Tests and has a useful chapter on Questioning in the Classroom); Ballard, P. B., *The New Examiner* (U.L.P., 1934).

whether one considers an essay good, bad or indifferent than to give it a definite mark like 30 or 34 per cent. The borderline cases between good and indifferent and between indifferent and bad give us two more relatively easily determined categories, making five in all.

Wallis [1] suggests for the marking of literary essays an analysis into "sets of qualities" instead of "points of information", e.g. (i) Range of ideas, (ii) Quality of ideas, (iii) Style, (iv) Technical accuracy, (v) General form. He thinks there is much to be said for marking an essay as a whole by general impression gained from a rapid reading of it, the sets of qualities given above being kept in mind. There might be five categories, poor, fair, average or fairly good, good, very good, on a first reading. These categories can be given marks up to ten, and the marks then multiplied will give a percentage when this is required. To mark out of a possible total of fifty or a hundred by general impression giving three essays say 33, 35, 37 is a very doubtful practice.

As already suggested it is illuminating to the young teacher to mark the same batch of essays by different methods and compare the results. For example, she might decide on the points of information or style she would expect in an ideal answer, and allot marks for these. She might then mark the same essays, preferably after a little time has elapsed, by general impression gained by reading through them fairly rapidly.

Whatever method she adopts in a given case she should consider carefully her final list of marks to see if the test has been of reasonable difficulty. A good

[1] Wallis, B. C., *op. cit.*

examination will often " spread " the candidates over a fairly wide range of marks. If the number of candidates were extremely large and unselected the distribution should correspond approximately with the curve of normal distribution.[1]

(2) *Standardized Tests.*

The thoughtful teacher will want information about standards for herself and for her pupils which her own home-made tests cannot give. She can appeal to standardized tests for this purpose. The best known standardized tests are those of *general intelligence.* The student should distinguish clearly in her mind between tests of general intelligence and tests of general knowledge. One aims at measuring an innate quality of mind, the other aims at testing acquired knowledge. There are many tests which aim at testing level of achievement in different subjects. The young teacher should consult Burt's comprehensive work [2] on this subject. She will find in it tests of general mental ability, reasoning tests and various other kinds of tests, as well as tests of educational attainments in arithmetic, hand-work, writing, reading, spelling and so on.

Tests in many *school subjects* have been standardized so that it is now possible for teachers to measure the attainments of their pupils on an absolute scale. When we know how a child does in a standardized test in arithmetic, for example, we get an idea as to whether or

[1] See Thomson, Godfrey H., *Instinct, Intelligence and Character* (George Allen and Unwin, Ltd.), Chap. XVII, for a description and explanation of " the famous Normal Curve of Probability ".

[2] Burt, Cyril, *Mental and Scholastic Tests* (P. S. King and Son, Ltd., 1927).

not he is up to the average, and we are then in a better position to judge the extent to which we should concentrate on that subject. Standardized tests must be given in accordance with specific instructions. They have been carefully evaluated by application to numerous children. The latest American revision of the Binet–Simon intelligence tests is based upon results gained from 3184 school-children.[1]

Such tests give an objective standard, and reduce to a minimum the subjective bias which is bound to influence personal estimates and oral tests, as well as most written examinations, notably those of the essay type. They show the level of performance or knowledge which the majority of children reach at a given age. They help the teacher to keep in mind certain standards which have been established by scientific methods in known circumstances, and she can make very valuable use of these standards in her work. The standards give her an idea of average achievements. They should not be taken by her as standards to be reached at any cost. She must not enslave herself or the children to them. She must feel free to expect either more or less than the standard accomplishment from individual or class. Her own judgment of what her class, or any individual in it, can be expected to do is the important thing.

Of *standardized achievement tests* Professor Godfrey Thomson writes,[2] " In their place, however, these new Achievement Tests are excellent. Especially in the tool subjects of reading and arithmetic they are revolu-

[1] Terman, L. M., and Merrill, M. A., *Measuring Intelligence* (Harrap and Co., Ltd., 1937), p. 12.

[2] Thomson, Godfrey H., *Instinct, Intelligence and Character* (Allen and Unwin, Ltd.), p. 203.

tionary. The law of diminishing returns applies here as everywhere, and some of the very best teachers, there can be no doubt, expend time and energy in attaining an over-perfection of efficiency, when the trial of a few standardized tests would assure them that their classes were already in the top quartile for these subjects, so that attention might better be given to exploring the pleasant fields lying alongside the beaten track of the Three R's. Individual weaknesses can be diagnosed. Poor classes can be confronted with performance results. And rewards can be given for improvement for beating an average man, not an impossible ideal. I have often wished I knew, for a golf hole, not the 'bogey' score, but the norms of actual performance, the median and the quartiles. I might regain self-respect."

(3) *External Examinations.*

These enable schools to compare their work with the results of other schools and though our concern in this book is with questioning in the classroom a few words about external examinations will not be out of place. We have already described "class-tests". When well-conducted these are both enjoyable and useful. Many children enjoy even the more formal terminal or yearly examinations within the school. They may be stimulated to their best efforts both during the examination and during their preparation for it. They are often curious and interested; there is the charm of the infrequent and there is a feeling of importance. If fear enters at all it does so in such a way and so slightly that it may even increase the pleasure by providing a thrill, a feeling of adventure, rather than the obsession and

paralysis which accompanies strong fear situations. What of the external examinations? It must be admitted that many children fear these excessively. It can hardly be otherwise so long as teachers and parents, many of whom fear them too, take the examinations so seriously. If the child is rather bright there are often special coachings, constant references to the examination, obvious anxiety on the part of the teacher or the parent as to the possible results, and references to the honour of the school or family record. All these make cowards of many. If the child is a poor examinee the situation may be even worse, though if he excels in some other sphere he may feel compensated and remain unruffled. We are still far from the state of affairs suggested by Wallis [1] as follows:

> "To the child a scholarship examination should be a routine incident in school life, an incident which by its very novelty becomes a joyous adventure. Should teachers cause the children to dread the examination day? The papers are a stimulus to endeavour, should the dread of making a mistake prevent the free play of the child's intelligence?" . . . "Let the teacher have faith in the product of his year-long labours, so that the native capacity of the child, fostered and guided by well-thought-out plans, which began to operate when the child first toddled to school, may respond freely to the stimulus, the exceptional stimulus, of this one day. Let the teachers forget or ignore the examination as much as possible."

Neither parent nor teacher can be blamed for having in the past taken so seriously a matter on which our

[1] Wallis, B. C., *op. cit.*, pp. 104–105.

educational system laid so much stress. On the results of external examinations depended many a child's whole future.

(4) Questions are indispensable in the *diagnostic* tests now being devised and used for exploring and testing individual difficulties in school subjects.

Before remedies can be applied, it is necessary to diagnose the trouble. For example, Professor Schonell's set of tests in arithmetic [1] consists of hundreds of small arithmetical exercises and problems the answers to which reveal the specific arithmetical difficulties of the individuals tested. They enable the teacher to isolate, and subsequently to deal with, the innate or acquired, intellectual or emotional, factors at work producing backwardness in the subject.

As the author of the tests comments (page 2), "A teacher knows the levels of his respective pupils in arithmetic: that John is weak in subtraction, that Lily makes errors in addition, and that Ben invariably makes mistakes in multiplication; but what he requires to know exactly is the nature, extent and cause of the pupils' errors in these particular processes. He can then reduce the extent of failure amongst his class by distributing his time and suitable remedial work more effectively."

D. To give children some idea of, and practice in, the art of thinking, and in sound methods of problem-solving in different subjects.

We have still a great deal to learn about how to teach children the art of thinking soundly; but we may claim that they leave school more able to think well than

[1] Schonell, F. J., *Diagnosis of Individual Difficulties in Arithmetic* (Oliver and Boyd).

when they enter it. This improvement is partly due to natural development and partly to out-of-school experiences and influences. But when we have made allowance for all such factors, there is still a good deal left for which the teacher can claim credit. In particular, skilful questioning is of immense value in cultivating the ability to think soundly.

When he enters school the young child is already very busy acquiring some of the important tools which he will use for the more complex and abstract thinking of his adult life. Indeed he is often thinking reflectively even while he is acquiring the tools. Perceptual activities, such as the physical manipulation of objects, are still predominant, but many of his problems are solved by a mixture of reflective and non-reflective behaviour. What we often call "trial-and-error" usually involves both perceptual, practical manipulation of concrete objects, and conceptual "manipulation" of words, images, and other symbols. The solution of some of the earliest concrete practical problems which the child encounters at the perceptual level requires the use of relations and correlates. There is an important ability to recognize and to educe relationships such as those of difference, similarity, cause-and-effect, space, time, and evidence.[1] A child acts on a perception of some of these relationships so early in life, and indeed recognizes them, and educes them, so early that we can readily accept them as fundamental.

The child's behaviour in problem-solving becomes increasingly self-conscious and increasingly intelligent; it becomes increasingly reflective, insightful, abstract;

[1] See Spearman C., *The Nature of 'Intelligence' and the Principles of Cognition* (Macmillan and Co.).

it increasingly makes use of symbols and increasingly involves the recognition and the eduction of relations and correlates. His span of comprehension widens; his knowledge and experience increase in width and depth; his grasp of methods of dealing with his materials increases. He learns that there may be different ways of solving a problem, and becomes capable of realizing the advantages of pursuing a suitable method for solving a particular problem rather than muddling through and hoping for the best. His physical and mental qualities, his personality and character develop. His relations with himself and others become more stabilised. He adopts aims, values, ideals, from his society. These influence, and are influenced by, his problem-setting and his problem-solving.

Many people remain all their lives more interested in concrete and practical problems than in those which are theoretical or abstract. But everybody must, for the ordinary purposes of living with other people, accumulate, integrate, and deal in, abstractions, general ideas and concepts of some kind. Before he leaves school the child can successfully cope with many complicated abstract problems, with or without the help of concrete material such as actual objects, models, sketches, or diagrams. Many children show a remarkable ability to look ahead, to plan, to investigate purposively and methodically. Some may later on devote themselves to research in science, philosophy, æsthetics, or in more definitely practical affairs. All should find themselves better able to deal adequately with those every-day problems which require thought. They should be better able to cope with a situation

with the self-reliant attitude gained by those who have had much and varied experience of problem-solving and who have in the past met with and overcome obstacles. Though the circumstances and the details may be new to them they should at least be able to attempt to analyse the situation and to deal with the problem with some chance of success. It is to be hoped that in the near future children will leave school knowing a good deal about the art of thinking, with its foundations of psychology and logic, not merely because they have been told about it, but because during their schooldays they have been practising it and because in their final year at school they have had explicit attention directed to it.

There are five fundamental requirements which need to be satisfied before a child can learn to think soundly.

(*a*) He must be capable of thinking. We need not trouble much about this requirement, for children think without being deliberately taught to do so. We may take the necessary fundamental physical and mental qualities for granted, though we have to bear in mind the fact that all children do not possess these qualities in equal measure. We may also take it for granted that the environment always gives *some* opportunity for the exercise and development of these fundamental qualities.

(*b*) There must be problems to think about and a desire or a need to think about them. There must be some kind of satisfaction or reward either in the result of the thinking or in the process or activity itself. Opportunities, incentives, and rewards are necessary. When the child does not readily react to the problem situations in the environment the teacher can

direct attention to them by interesting comments. She can arouse the child to activity by "touching-off" curiosity, self-assertiveness, pugnacity, the desire to fill in gaps in knowledge, the desire to get a particular piece of information for some practical purpose or to explain something. She can bring forward new problems and new ways of looking at old ones. She can define problems and split them up into more manageable ones. Both teacher and child need practice in finding the right questions to ask and in asking them effectively.

(*c*) There must be a good emotional, intellectual, and conative atmosphere in the classroom. The conditions should be such that the child can enjoy himself, feel secure, experiment, set problems for himself and others, seek answers alone or co-operatively, explore, manipulate, be curious and adventurous, and with or without help master his environment so far as is necessary. Questioning devices help substantially in establishing and maintaining such an atmosphere (see section A above, p. 142).

(*d*) The thinker must have at his command sound usable facts and skills.

> (i) In the process of acquiring facts and skills the child asks and answers questions, sets and solves problems, observes, experiments, explores. He learns to read and write. By reading he finds answers to certain study questions. By writing he expresses answers. Besides learning to read, write, and count, he learns new words, new combinations of words, new concepts, new symbols, new relationships. In his perpetual collecting of facts and acquiring of skills he spontaneously names, classifies, compares, relates, identifies, and clarifies.

(ii) Our teaching and the children's learning are usually imperfect. Mistakes are made which should be detected and put right. Diagnostic and remedial questions are necessary for this purpose. When the imperfection is of long standing, or if the origin is hidden, searching diagnostic questioning and prolonged drill for correction and re-education are likely to be necessary. Facts and skills should be sound and well-established if they are to be of satisfactory permanent use. Questioning for the purposes of testing has been considered in section C above (p. 155). Its use for the practice of skills and in the application of facts has been indicated in section B (p. 151).

(iii) The facts and skills we acquire have to be used in solving many immediate problems. Unless they are well fixed there is unnecessary delay in recalling them. But if they are too firmly fixed to fit one particular kind of problem they are not of immediate use in solving a variety of problems. If we fix too firmly the word *square* to boxes only, when the child is learning the word, it will be less readily used in reference to other square objects. If we tie up too securely the product of nine times eight in the nine times table (necessary as tables are) so that we have to run through the table every time we want to know the result, we limit the use of the fact that nine times eight are seventy-two. Numerous applications should keep facts and skills flexible and usable in wider fields than that in which they were acquired. If this is done the facts and skills are likely to be more useful not only in solving immediate problems, but in the processes of thinking by which further facts and skills are gained. Questioning is of great value here. (See section B above for variety of application.)

(*e*) Effective procedures by which problems can be solved are necessary for sound thinking.

Unmethodical thinking[1] is adequate in many circumstances and considerable flexibility is permissible, indeed desirable, for both teacher and child. Rigid conformity to rules or to definite sequences and overlappings in the processes that make up thinking is often undesirable. It is sometimes uneconomical of time and effort to aim at perfectly orderly, strictly methodical, logical thinking. Unswerving loyalty and devotion to relentless logic would often set up a paralysis of indecision and prevent necessary action. The teacher should be willing on occasion to "let herself go" in her own thinking even if she seems to be acting illogically. She will probably be acting more logically than she knows. There are times when deliberate, conscious, effortful questioning is particularly to be left alone. The "incubation" period is one such time Productive activity is going on in "the unconscious". Problems are working themselves out "below the surface". Works of inspiration of all kinds are being hatched. This is one of the most interesting phases of constructive or creative thinking. It is as though ideas and other mental "content" were absorbed, consolidated, and re-arranged in new original patterns.[2]

[1] *Unmethodical thinking* may here be taken to include "intuitive" thinking.

[2] Perhaps one reason why "muddling along" sometimes succeeds so well is that the unconscious gets a particularly good chance to do the work. It is a pity that the unconscious has so bad a name. We should not allow ourselves to concentrate our attention solely on its evil possibilities. The truth is that it will do very useful positive, constructive work for us if we will only give it a chance and if we insist on it behaving co-operatively with "the

Some knowledge of logic and of the psychology of thinking is highly desirable in a teacher who would teach children to think soundly and effectively. The better we understand the details and rules of procedure, and the better we are at applying them, the more safely can we sometimes allow departure from them, and the more flexible can our behaviour be. The better we understand logical thinking the better we can appreciate its practical shortcomings. We can still respect it without allowing it to become a harsh task-master; we can plan and not make plans our master; we can help children to practise solving problems of different kinds and to choose the most useful procedure for a given problem.

What actually happens when a problem arises which we want to solve? One or more possible solutions or possible procedures may come to mind. We try one. It may fail or succeed. If it fails we may try the others. If they, too, fail and we are completely puzzled we probably turn to hit-or-miss, trial-and-error methods. In spite of their names these methods usually involve thinking. If the problem remains stubborn and our determination remains firm we may settle down to "think it out". The statement of the original problem may need to be clarified, or it may need to be split up and simplified. Each of the smaller problems may prove to be soluble and the answers put together may lead to the desired solution. It is very important to put the right questions. In defining, analysing, synthesizing, systematizing, we may have to learn new words and concepts, try new experiments, find facts

conscious". We too often make a bogey of it. Let us take it into our confidence and give it work to do.

and combine them in relationships hitherto untried by us. Question after question arises and is answered or left unanswered until some other yet-to-be-discovered fact enables us to answer it. We do not proceed by means of an obvious clear-cut process of finding and then arranging the material, but by feeling our way, gradually building up, sometimes pulling down again, arranging as we go along, rejecting what seems irrelevant though later it may prove to be relevant, arranging what seems to be relevant into what seems to be a suitable order only perhaps to find a little later on that it is irrelevant or wrongly arranged.

When we have succeeded in finding the relevant facts and their relevant relationships our reflective thinking may result in a conclusion in the form of a generalization, inference, or rule. In many cases of problem-solving, however, the chances are that before we have formulated the conclusion in words, we have "seen" the solution and solved the problem. Sometimes the solution comes so quickly that we "see" it only after we have used it. Simple illustrations of this fact may be found in solving jig-saw puzzles when our fingers "choose" and put the right pieces in place before we know they are the right pieces.

We may, however, go further and actually formulate the conclusion, and test out our new knowledge by applying it in a variety of circumstances to find out how far it will work. We may have to form several hypotheses before we reach a satisfactory conclusion, and probably after each failure we shift our ground somewhat and modify our attack in the light of the previous experiences. We generally use mixed methods in solving complicated problems, and we often combine

hit-or-miss, trial-and-error procedure with reflection. Perceptual activities are often going on at the same time as conceptional reflection.

During the more conscious, deliberate moments and stages of the process of thinking we analyse and synthesize; we select and discard; we organize, disorganize, and re-organize our material until we are satisfied with the results. At other times the procedure is of a less conscious nature. Productive creative thinking is often a slow business, and it is important for the teacher, and for the child, to realize the value of a time for *incubation*. Once we have an aim or goal in mind, and a mental set in a more or less definite and promising direction, provided we have done some deliberate conscious work on the question, we may wisely refrain from pressing ourselves for an immediate answer. It is better sometimes to enter on a period of deliberate open-mindedness and suspended judgment, in fact " to leave it to the unconscious " and wait for the answer, or a new clue, to emerge. We may sometimes with advantage indulge in, and encourage children to indulge in, an orgy of guessing, speculation, and wild hypothesis-making.

The main reward of thinking may sometimes lie in the enjoyment of the process itself. Sometimes we take little pleasure in the process itself and reach a satisfactory conclusion in a truly pedestrian, prosaic manner, finding our main reward in a sense of duty or in the use we can make of the results of our efforts. Best of all, on rare occasions, we may experience thrilling flashes, moments of illumination and inspiration, enjoyable " flights of imagination " which compensate for hours, months, even years of semi-drudgery. It is as though a traveller climbing a monotonous hill, plodding along

a barren, viewless slope, comes suddenly on a beautiful view which enchants his eye, rejoices his heart, restores his courage, and inspires him to excel himself in renewed efforts.

When a teacher who aspires to train children to think soundly finds herself using such expressions as "sound thinking", "scientific method in thinking", "the spirit of research", she should pause and ask herself such questions as "What exactly do I mean by that?" "Can I think soundly myself?" "Do I know how even if I cannot do it?" "Do I know how to teach children how to think soundly?" "How is it done?" These are difficult questions, and probably very few teachers would claim that they can answer them to their own satisfaction. Yet all the time the teacher is setting the standard by her own behaviour, and by the models, methods, and examples of thinking which she presents. She cannot help being herself a model for imitation. Her attitude and behaviour matter tremendously. She should know what she is doing. She should find out as much as she can about "the art of thinking" if she is to try to teach it to others. She should keep a critical eye on her own thinking and she should often think over her lessons in terms of thought processes. She should be able to see a pattern in her work whether she examines one of her lessons or a whole series. The pattern, plan, or skeleton will vary; the sequence and the overlapping of the processes will vary, but underneath she will almost certainly find some system. She will find that she makes a great deal of use of questioning throughout most lessons. At the beginning of the lesson she will often find herself or the children, or perhaps both,

asking a question or two which introduces her chosen topic in an interesting manner. Or it may be that a question from one of the children about last day's lesson gives her a starting-point for the day's topic. In the middle part of the lesson questions often serve to emphasize, to break up, or to consolidate material, and perhaps to lead up to some conclusion or generalization. At the end of a lesson questions test and apply knowledge gained and so provide trustworthy tools for further work on more advanced problems. Lessons vary, of course. Some, for instance, may concentrate on drill and revision of old material rather than on the gaining of new material. In most lessons, however, there are problems of one kind or another to be solved and the process of solving them is important. Problem-solving of the simplest kind is closely related to research of the highest kind.

The teacher should realize that the mental processes involved in abstract thinking are active already in children of infants' school age. We can see, as we have mentioned already, " the passion for naming, classifying, identifying, comparing ", and the attempts to set experiences in order and to generalize or draw conclusions. The child has already begun to reason. It would be wrong if the infants' teacher contented herself with the thought that, after all, infants need kindness and sympathy more than anything else. They need intellectual guidance as well if they are to feel mentally secure. In actual practice in the modern infants' school they get intellectual guidance as well as sympathy and physical security.

Nor would it be good enough for the teacher of infants or of juniors to fall back on the thought that her

main job with regard to the child's learning to think well is to see that he acquires the skills and the information, the tools, which will enable him to think reflectively and logically later on when he is older and needs to do so. The teacher in the junior school may be tempted to take up some such attitude. This is perhaps more serious in the junior school than in the infants' school because the atmosphere of increased formality and a certain restriction of freedom commonly found in the junior school too often mean the curtailment of opportunities for the children to think freely. Often so much time is taken up with absorbing and memorizing facts, and with the accumulation and practice of skills that the question of *thinking*, especially creative thinking, gets too little attention.

It is right that the child should be rapidly gaining certain skills and a good deal of information in both the infant and junior school. In the infants' school particularly, the apparatus provided presents many varied problem-situations to which the child reacts spontaneously. The environment is varied and stimulating, so that a wide choice of problems is ensured. The good infants' teacher encourages the small child to move, talk, and play as freely as is compatible with a similar freedom for the other children in the room. But this is not enough.

We may think that adolescence is the best time to make a systematic collection and arrangement of useful knowledge about the art of thinking; we may believe that a sound school education would give adolescent children nearing school-leaving age some systematic discussion of the logic and psychology of thinking, free from academic chill and arranged and

conducted in a way interesting to adolescent boys and girls. But we must not think that infant and junior teachers are free from responsibility for training children in sound thinking. Their rôle is very important. The *right* time for children to learn methods of sound thinking, as well as to gain tools for it, is *all* the time, however simply. They are influenced by the teacher when she herself thinks soundly and behaves consistently. From the beginning of their school life her example tells. If she is to do good work she should be a well-integrated personality, "educated", and able to think soundly herself. She should be able to look on education as a whole, as a continuous process. She should be able to look back with a good idea of what the child was before he came to school, and forward to what he is likely to be when he leaves to take up a job, or to proceed to "further education". The sooner the start and the more continuous the early training the easier and the more effective will the work of the secondary teacher be at a later stage. She will be severely handicapped in her efforts to build up with her class a systematic account of sound thinking unless during earlier school life the ground has been well prepared. The infant teacher and the junior teacher should know what the secondary teacher is aiming at and they should contribute to the achievement of these aims. The secondary teacher must co-operate, too. If she is to make the most of her opportunities and fulfil her great responsibility creditably she must understand the gradual development of the child mind; she must know what tools for thinking the child has acquired, and she should know a good deal about the ways and the environment in which they have been acquired. She,

too, must recognize the indivisibility of educators as well as the indivisibility of education.

The teacher is constantly demonstrating problem-solving and thinking in front of the class. She takes care to get the problem clearly stated, she re-states it at intervals to keep it clear, she examines facts or methods which seem promising, she arranges a series of answers or facts to guide the class along a path which she knows will lead to the conclusion she wants to reach, she arranges a special little group of questions to give the class some special piece of drill or practice, and so on. In addition to giving many good examples of hypothesis-testing the teacher should illustrate some of the effects of rash generalizations and self-deception through emotion, carelessness, or haste. The child's own work with questions and problems should give him personal experiences of these. Caution can be demonstrated by the teacher's own cautious thinking; only the child's own personal experience can drive home the necessity of caution. "Catch questions" are occasionally useful, but plenty of examples of incautious behaviour in problem-solving arise in the ordinary course of work in the classroom. Plenty of practice should be gained in suspending judgment till facts are tested, perhaps by a second method. The teacher's example is useful here too, and she can often discuss a question and leave it for the class to "think over" before coming to a decision. Along with the teacher's demonstration of the detection and correction of mistakes and her production of models, should go the child's own practice in finding the mistakes and choosing ways of dealing with them; practice, too, in building up models, with or without help. Besides showing a good example

in her selection and arrangement of material in her constructive thinking, the teacher should also give the child many opportunities of finding, selecting, and arranging facts for himself in problem-solving, both with and without help from her and from other members of the class. The teacher's own exhibition of patience in seeking answers, her renewal of effort, her calmness in the face of failure, and her pleasure at the final solution, make their impression on the child. If they are to have their full value the child must have his own personal experiences through actual problem-solving. If he is to learn perseverance he must practise it. Study-questions may be useful for this purpose. In answering such questions he may learn that hard study can be enjoyable, and that things which are uninteresting at first sight may open up new exciting fields for exploration.

The child should, when he leaves school, have developed sufficient self-reliance to see him through many of his difficulties in life. He should be able to rely largely on himself to see and correct his own mistakes rather than to leave it to others to point them out to him; able to look on his own work as well as on that of other people with a critical eye; to be appreciative of good work; to realize the value of purpose in his work, and of flexibility in his thinking; to be able to face problems when they arise and not to succumb to discouragement at the first failure to solve them; to seek and to try different methods of solving refractory problems.

In school the child should have practice in sound thinking in all the subjects he studies. We cannot rely on a child to use in one subject, on his own initiative,

the facts and procedures he has learned in another subject. There is likely to be little or no "transfer of training". But though the results of investigations compel us to disbelieve in unconscious transfer it is permissible to believe in deliberate conscious transfer. The child should be encouraged to notice how he works when he gets his best results. By making thought processes conscious and by observing common elements in problem-solving and constructive work in many subjects we may hope that the child will eventually master the art of sound thinking to such a degree that the rules will be useful outside school. From various examples and applications in school a concept of general applicability may be reached by experience and practice.

Question-and-answer methods in the classroom help to train the child in self-reliance and resourcefulness. They also help to teach co-operativeness, one of the most important qualities both for the happiness of the individual and for the welfare of the community. Self-reliance and co-operativeness are interdependent in a "good citizen". He can think for himself and yet bow to the will of the majority when necessary, and he can work for the good of the community of which he is a member. It is not very effective procedure for the teacher merely to preach co-operation. She must demonstrate it by her own behaviour, notice it in others, and give the children as much practice as possible in exercising it. Free and critical group discussion can serve this purpose excellently. The development of self-control, which is one of the essential factors in co-operation and in maintaining good relations with other people, is served by asking and answering questions, by learning to

intervene in a discussion at a suitable time, expressing questions in a suitable manner, and profiting by the answers to continue the discussion. Control of material and of methods of investigation can be learnt from discussions with other people. Practice can be gained in thinking not only analytically and critically, but also systematically and constructively. It must be noted, however, that in many discussions there is a marked tendency to be adversely critical rather than co-operatively constructive. A debate rather than a discussion ensues. Practice in discussion may serve also to teach the child freedom of thought and expression, and to give him training in thinking and speaking in public.

Group work, with question-and-answer as a basic procedure, helps to socialize education, and from the individual's point of view it is very useful if he has had, in school, practice in keeping his own opinion in face of opposition, with good manners and good humour, till he is shown adequate reason to change, and practice in changing when the weight of evidence is against him. It is to everybody's advantage if the school can educate children to give and take criticism, to give and take advice, and to live happily in the community in which they find themselves.

APPENDIX I[1]

" Curiosity in Children . . . is but an Appetite after knowledge; and therefore ought to be encouraged in them, not only as a good Sign, but as the great Instrument Nature has provided to remove that Ignorance they were born with; and which, without this busy *Inquisitiveness*, will make them dull and useless Creatures. The ways to encourage it, and keep it active and busy, are, I suppose, these following:

" 1. Not to check or discountenance any *Enquiries* he shall make, nor suffer them to be laugh'd at; but to *answer* all his *Questions*, and *explain* the Matter he desires to know, so as to make them as much intelligible to him as suits the Capacity of his Age and Knowledge. But confound not his Understanding with Explications or Notions that are above it; or with the Variety or Number of things that are not to his present Purpose. Mark what 'tis his Mind aims at in the *Question*, and not what Words he expresses it in: And when you have informed and satisfied him in that, you shall see how his Thoughts will enlarge themselves, and how by fit Answers he may be led on farther than perhaps you could imagine. For Knowledge is grateful to the Understanding, as Light to the Eyes: Children are pleased and delighted with it exceedingly especially if they see that their *Enquiries* are regarded, and that their desire of Knowing is encouraged and commended.

[1] See footnote, this book, p. 19.

And I doubt not but one great Reason why many Children abandon themselves wholly to silly Sports, and trifle away all their Time insipidly, is, because they have found their *Curiosity* baulk'd, and their *Enquiries* neglected. But had they been treated with more Kindness and Respect, and their *Questions* answered, as they should, to their Satisfaction; I doubt not but they would have taken more Pleasure in Learning, and improving their Knowledge, wherein there would be still Newness and Variety, which is what they are delighted with, than in returning over and over to the same Play and Playthings.

"2. To this serious answering their *Questions*, and informing their Understandings, in what they desire, as if it were a Matter that needed it, should be added some peculiar ways of *Commendation*. Let others whom they esteem, be told before their Faces of the Knowledge they have in such and such things; and since we are all, even from our Cradles, vain and proud Creatures, let their Vanity be flatter'd with Things that will do them good; and let their Pride set them on work on something which may turn to their Advantage. Upon this Ground you shall find, that there cannot be a greater Spur. . . ."

Locke, on Education, by R. H. Quick, pp. 103–104. Cambridge. At The University Press. 1880.

APPENDIX II [1]

Wordsworth, " Anecdote For Fathers "

" Retine vim istam, falsa enim dicam, si coges." (Eusebius)

I have a boy of five years old;
His face is fair and fresh to see;
His limbs are cast in beauty's mould,
And dearly he loves me.

One morn we strolled on our dry walk,
Our quiet home all full in view,
And held such intermitted talk
As we are wont to do.

My thoughts on former pleasures ran;
I thought of Kilve's delightful shore,
Our pleasant home when spring began,
A long, long year before.

A day it was when I could bear
Some fond regrets to entertain;
With so much happiness to spare,
I could not feel a pain.

The green earth echoed to the feet
Of lambs that bounded through the glade,
From shade to sunshine, and as fleet
From sunshine back to shade.

[1] See footnote, this book, p. 15.

Birds warbled round me—and each trace
Of inward sadness had its charm;
Kilve, thought I, was a favoured place,
And so is Liswyn farm.

My boy beside me tripped, so slim
And graceful in his rustic dress!
And, as we talked, I questioned him,
In very idleness.

"Now tell me, had you rather be",
I said, and took him by the arm,
"On Kilve's smooth shore, by the green sea,
Or here at Liswyn farm?"

In careless mood he looked at me,
While still I held him by the arm,
And said, "At Kilve I'd rather be
Than here at Liswyn farm."

"Now, little Edward, say why so:
My little Edward, tell me why."—
"I cannot tell, I do not know."—
"Why, this is strange," said I;

"For here are woods, hills smooth and warm:
There surely must some reason be
Why you would change sweet Liswyn farm
For Kilve by the green sea."

At this my boy hung down his head,
He blushed with shame, nor made reply;
And three times to the child I said,
"Why, Edward, tell me why?"

His head he raised—there was in sight,
It caught his eye, he saw it plain—
Upon the house-top, glittering bright,
A broad and gilded vane.

Then did the boy his tongue unlock,
And eased his mind with this reply:
"At Kilve there was no weather-cock;
And that's the reason why."

O dearest, dearest boy! my heart
For better lore would seldom yearn,
Could I but teach the hundredth part
Of what from thee I learn.

APPENDIX III[1]

(*a*) In *The Clouds of Aristophanes* (Translation by B. B. Rogers, G. Bell & Sons, published in the Loeb Library by Heinemann, 1924, lines 135–137, page 21) we find that it was a student or disciple of Socrates (not Socrates himself) inside the "thinking house" or school who complained because a prospective student Strepsiades made a noise outside the door.

He exclaimed:

> "Why, what a clown you are! to kick our door,
> In such a thoughtless, inconsiderate way!
> You've made my cogitation to miscarry."

Another translation supports this (Starkie, W. J. M., *The Clouds of Aristophanes* (Macmillan & Co., 1911) lines 135–137, page 43).

Disciple (to Strepsiades):

> "Marry, you're no philosopher to have yerked the door in this unspeculative way. You've caused us to miscarry of a problem prefigured by thought."

(*b*) The following is an extract from a conversation reported by Plato,[2] between Socrates, Theætetus and another. The subject of the dialogue is really the nature of knowledge. Our concern, however, is with a

[1] See footnote, this book, p. 90.
[2] Plato. *Theætetus:* with an English Translation by H. N. Fowler (Heinemann, 1921), pp. 29–41: 73, 257.

digression (the extract given here) in which Socrates likens his method of investigation to the activities of the midwife.

Socrates describes himself as practising the art of intellectual midwifery and bringing thoughts to the birth.

Socrates. Yes, you are suffering the pangs of labour, Theætetus, because you are not empty, but pregnant.

Theætetus. I do not know, Socrates; I merely tell you what I feel.

Soc. Have you then not heard, you absurd boy, that I am the son of a noble and burly midwife, Phænarete?

Theæt. Yes, I have heard that.

Soc. And have you also heard that I practise the same art?

Theæt. No, never.

Soc. But I assure you it is true; only do not tell on me to the others; for it is not known that I possess this art. But other people, since they do not know it, do not say this of me, but say that I am a most eccentric person and drive men to distraction. Have you heard that also?

Theæt. Yes, I have.

Soc. Shall I tell you the reason, then?

Theæt. Oh yes, do.

Soc. Just take into consideration the whole business of the midwives, and you will understand more easily what I mean. For you know, I suppose, that no one of them attends other women while she is still capable of conceiving and bearing, but only those do so who have become too old to bear.

Theæt. Yes, certainly.

Soc. They say the cause of this is Artemis, because she, a childless goddess, has had childbirth allotted to her as her special province. Now it would seem she did not allow barren women to be midwives, because human nature is too weak to acquire an art which deals with matters of which it has no experience, but she gave the office to those who on account of age were not bearing children, honouring them for their likeness to herself.

Theæt. Very likely.

Soc. Is it not, then, also likely and even necessary, that midwives should know better than anyone else who are pregnant and who are not?

Theæt. Certainly.

Soc. And furthermore, the midwives, by means of drugs and incantations, are able to arouse the pangs of labour and, if they wish, to make them milder, and to cause those to bear who have difficulty in bearing; and they cause miscarriages if they think them desirable.

Theæt. That is true.

Soc. Well, have you noticed this also about them that they are the most skilful of matchmakers, since they are very wise in knowing what union of man and woman will produce the best possible children?

Theæt. I do not know that at all.

Soc. But be assured that they are prouder of this than of their skill in cutting the umbilical cord. Just consider. Do you think the knowledge of what soil is best for each plant or seed belongs to the same art as the tending and harvesting of the fruits of the earth, or to another?

Theæt. To the same art.

Soc. And in the case of a woman, do you think, my friend, that there is one art for the sowing and another for the harvesting?

Theæt. It is not likely.

Soc. No; but because there is a wrongful and unscientific way of bringing men and women together, which is called pandering, the midwives, since they are women of dignity and worth, avoid match-making, through fear of falling under the charge of pandering. And yet the true midwife is the only proper match-maker.

Theæt. It seems so.

Soc. So great, then, is the importance of midwives; but their function is less important than mine. For women do not, like my patients, bring forth at one time real children and at another mere images which it is difficult to distinguish from the real. For if they did, the greatest and noblest part of the work of the midwives would be in distinguishing between the real and the false. Do you not think so?

Theæt. Yes, I do.

Soc. All that is true of their art of midwifery is true also of mine, but mine differs from theirs in being practised upon men, not women, and in tending their souls in labour, not their bodies. But the greatest thing about my art is this, that it can test in every way whether the mind of the young man is bringing forth a mere image, an imposture, or a real and genuine offspring. For I have this in common with the midwives: I am sterile in point of wisdom, and the reproach which has often been brought against me, that I question others but

make no reply myself about anything, because I have no wisdom in me, is a true reproach; and the reason of it is this: the god compels me to act as midwife, but has never allowed me to bring forth. I am, then, not at all a wise person myself, nor have I any wise invention, the offspring born of my own soul; but those who associate with me, although at first some of them seem very ignorant, yet, as our acquaintance advances, all of them to whom the god is gracious make wonderful progress, not only in their own opinion, but in that of others as well. And it is clear that they do this, not because they have ever learned anything from me, but because they have found in themselves many fair things and have brought them forth. But the delivery is due to the god and me. And the proof of it is this: many before now, being ignorant of this fact and thinking that they were themselves the cause of their success, but despising me, have gone away from me sooner than they ought, whether of their own accord or because others persuaded them to do so. Then, after they have gone away, they have miscarried thenceforth on account of evil companionship, and the offspring which they had brought forth through my assistance they have reared so badly that they have lost it; they have considered impostures and images of more importance than the truth, and at last it was evident to themselves, as well as to others, that they were ignorant. One of these was Aristeides, the son of Lysimachus, and there are very many more. When such men come back and beg me, as they do, with wonderful eagerness to

let them join me again, the spiritual monitor that comes to me forbids me to associate with some of them, but allows me to converse with others, and these again make progress. Now, those who associate with me are in this matter also like women in childbirth; they are in pain and are full of trouble night and day, much more than are the women; and my art can arouse this pain and cause it to cease. Well, that is what happens to them. But in some cases, Theætetus, when they do not seem to me to be exactly pregnant, since I see that they have no need of me, I act with perfect goodwill as match-maker, and, under god, I guess very successfully with whom they can associate profitably, and I have handed over many of them to Prodicus, and many to other wise and inspired men.

Now I have said all this to you at such length, my dear boy, because I suspect that you, as you yourself believe, are in pain because you are pregnant with something within you. Apply, then, to me, remembering that I am the son of a midwife and have myself a midwife's gifts, and do your best to answer the questions I ask as I ask them. And if, when I have examined any of the things you say, it should prove that I think it is a mere image and not real, and therefore quietly take it from you and throw it away, do not be angry as women are when they are deprived of their first offspring. For many, my dear friend, before this have got into such a state of mind towards me that they are actually ready to bite me, if I take some foolish notion away from them, and they do not believe that I do this in kindness, since they are far from

knowing that no god is unkind to mortals, and that I do nothing of this sort from unkindness, either, and that it is quite out of the question for me to allow an imposture or to destroy the true. And so, Theætetus, begin again and try to tell us what knowledge is. And never say that you are unable to do so; for if God wills it and gives you courage, you will be able.

Theæt. Well then, Socrates, since you are so urgent it would be disgraceful for anyone not to exert himself in every way to say what he can. I think, then, that he who knows anything perceives that which he knows, and, as it appears at present, knowledge is nothing else than perception.

Soc. Good! Excellent, my boy! That is the way one ought to speak out. But come now, let us examine your utterance together, and see whether it is a real offspring or a mere wind-egg. Perception, you say, is knowledge?

Theæt. Yes.

Soc. And, indeed, if I may venture to say so, it is not a bad description of knowledge that you have given, but one which Protagoras also used to give. Only, he has said the same thing in a different way. For he says somewhere that man is "the measure of all things, of the existence of the things that are and the non-existence of the things that are not" . . .

Socrates then proceeds to refute the doctrine of Protagoras that "man is the measure of all things". After many more questions and answers he asks (p. 73), "Shall we say that this [1] is, so to speak, your new-born child and the result of my midwifery?"

[1] i.e. the idea that perception is knowledge.

Theætetus agrees, but on further examination, also by means of questions and answers, this idea and others put forward by Theætetus in answers to questions are shown to be false and the discussion closes as follows (p. 257):

Socrates. Then does our art of midwifery declare to us that all the offspring that have been born are mere wind-eggs and not worth rearing?

Theæt. It does, decidedly.

Soc. If after this you ever undertake to conceive other thoughts, Theætetus, and do conceive, you will be pregnant with better thoughts than these by reason of the present search, and if you remain barren, you will be less harsh and gentler to your associates, for you will have the wisdom not to think you know that which you do not know. So much and no more my art can accomplish; nor do I know aught of the things that are known by others, the great and wonderful men who are today and have been in the past. This art, however, both my mother and I received from God, she for women and I for young and noble men and for all who are fair.

This famous digression also illustrates some of the characteristics of "*Socratic Questioning*" and "*Socratic Method*". Students should avoid using these two terms in reference to classroom questioning at least until they have read some of the Dialogues. They should also note that the circumstances of Socrates' questioning were very different from those of the class teacher. The classroom procedure to which the two terms mentioned above are sometimes loosely applied

only remotely resembles the method of Socrates as reported by Plato.

In the Platonic dialogues we can see Socrates exposing a fallacy or inculcating a so-called truth by means of a definite series of skilfully planned questions. They are planned and put with continuity and purpose.

Sometimes the discussion centres round a definition. This is shown to be too wide or too narrow. Cross-examination produces inconsistent answers and finally an admission from the pupil that he cannot give a satisfactory definition.

The following quotation from Raymont[1] suggests one kind of opportunity for the student to investigate for himself:

> "The child who defines the equator simply as an imaginary line drawn round the world should be led by means of a series of questions to see that his definition needs amendment. It is just here that the value of so-called Socratic questioning becomes undoubtedly great. It is true that the parallel between the dialectic of Socrates and the schoolteacher's questions has often been over-stated. The aim of that philosopher, as he is reported in Plato's dialogues, was generally to convict his interlocutors of intellectual shallowness, and of uncritical acceptance of current opinion; and he appears to have derived peculiar satisfaction from first causing his victims to contradict themselves and then leaving them in the lurch—a very different aim from that of the teacher. Notwithstanding this difference, however, the easier dialogues of Plato certainly form excellent reading for the teacher who aspires to skill in the art of questioning."

[1] Raymont, T., *The Principles of Education* (Longmans, Green and Co., 1919), p. 264.

The student should read the Meno of Plato. She will find that in the foregoing quotation justice is hardly done to the constructive spirit of Socrates' treatment of Meno's slave boy when he is demonstrating to Meno that in a sense, he, the boy, already knows the geometrical proposition of which he thinks himself to be ignorant.

We read in Taylor's *Plato* [1] that " the point insisted on is that the lad starts with a false proposition, is led to replace it by one less erroneous, and finally by one which, so far as it goes, is true. Yet Socrates has ' told ' him nothing. He has merely drawn diagrams which suggest the right answers to a series of questions. The only ' information ' he has imparted to the slave is that a certain line is technically called . . . a ' diagonal '. Everything else has been left to the boy to think out for himself in response to the suggestions provided by Socrates' diagrams and questions. Yet undeniably the lad began by not knowing something and ended by knowing it."

At the same time there is a good deal in Raymont's warning to the teacher. Even Meno himself made a protest in the dialogue.[2] Meno is one of Socrates's disciples and asks him whether virtue can be taught. Socrates probes and questions Meno about his own view of the matter until he becomes so uncomfortable under the questioning that he complains that Socrates benumbs him like a torpedo, and that Socrates' teaching is negative in character. " Why Socrates," he says, " you remind me of that broad sea-fish called the torpedo, which produces a numbness in the person who approaches and touches it. For, in truth, I seem

[1] Taylor, A. E., *Plato: The Man and his Work*, pp. 137–138.
[2] Plato, *Meno*.

benumbed both in mind and mouth, and I know not what to reply to you, and yet I have often spoken on this subject with great fluency and success."

Socrates's answer is to call Meno's attendant slave-boy, to put to him a series of questions about the definition of a square, and thus to make Meno admit that the benumbing process has done him good rather than harm, for it is better to realize one's ignorance and therefore be prepared to search for the truth.

APPENDIX IV[1]

Milton's *L'Allegro*

The Poems of John Milton, Volume I (At the Florence Press, Chatto & Windus, 1925), pp. 103–107.

Hence loathed Melancholy
Of Cerberus, and blackest midnight born,
In Stygian Cave forlorn
'Mongst horrid shapes, and shrieks, and sights unholy,
Find out some uncouth cell,
Where brooding darkness spreads his jealous wings,
And the night-Raven sings;
There under Ebon shades, and low-brow'd Rocks,
As ragged as thy Locks,
In dark Cimmerian desert ever dwell.
But come thou Goddess fair and free,
In Heav'n yclep'd Euphrosyne,
And by men, heart-easing Mirth,
Whom lovely Venus at a birth
With two sister Graces more
To Ivy-crowned Bacchus bore;
Or whether (as some Sager sing)
The frolick Wind that breathes the Spring,
Zephyr with Aurora playing,
As he met her once a Maying,
There on Beds of Violets blue,
And fresh-blown Roses washt in dew,

[1] See footnote, this book, p. 94.

Fill'd her with thee a daughter fair,
So buxom, blithe, and debonair.
Haste thee nymph, and bring with thee
Jest and youthful Jollity,
Quips and Cranks, and wanton Wiles,
Nods, and Becks, and Wreathed Smiles,
Such as hang on Hebe's cheek,
And love to live in dimple sleek;
Sport that wrinkled Care derides,
And Laughter holding both his sides.
Come, and trip it as ye go
On the light fantastick toe,
And in thy right hand lead with thee,
The Mountain Nymph, sweet Liberty;
And if I give thee honour due,
Mirth, admit me of thy crew
To live with her, and live with thee,
In unreproved pleasures free;
To hear the Lark begin his flight,
And singing startle the dull night,
From his watch-tower in the skies,
Till the dappled dawn doth rise;
Then to come in spite of sorrow,
And at my window bid good morrow,
Through the Sweet-Briar, or the Vine,
Or the twisted Eglantine;
While the Cock with lively din,
Scatters the rear of darkness thin,
And to the stack, or the Barn door,
Stoutly struts his Dames before;
Oft list'ning how the Hounds and horn
Cheerly rouse the slumbring morn,
From the side of some Hoar Hill,

Through the high wood echoing shrill.
Some time walking not unseen
By Hedge-row Elms, on Hillocks green,
Right against the Eastern gate,
Where the great Sun begins his State,
Rob'd in flames, and Amber light,
The clouds in thousand Liveries dight.
While the Plowman near at hand,
Whistles o'er the Furrow'd Land,
And the Milkmaid singeth blithe,
And the Mower whets his scythe,
And every Shepherd tells his tale
Under the Hawthorn in the dale.
Straight mine eye hath caught new pleasures
Whilst the Lantskip round it measures,
Russet Lawns, and Fallows Gray,
Where the nibbling flocks do stray;
Mountains on whose barren breast
The labouring clouds do often rest;
Meadows trim with Daisies pied,
Shallow Brooks, and Rivers wide.
Towers, and Battlements it sees
Bosom'd high in tufted Trees,
Where perhaps some beauty lies,
The Cynosure of neighbouring eyes.
Hard by, a Cottage chimney smokes,
From betwixt two aged Oaks,
Where Corydon and Thyrsis met,
Are at their savoury dinner set
Of Herbs, and other Country Messes,
Which the neat-handed Phyllis dresses;
And then in haste her Bow'r she leaves,
With Thestylis to bind the Sheaves;

Or if the earlier season lead
To the tann'd Haycock in the Mead.
Sometimes with secure delight
The up-land Hamlets will invite,
When the merry Bells ring round,
And the jocund rebecks sound
To many a youth, and many a maid,
Dancing in the Chequer'd shade;
And young and old come forth to play
On a Sunshine Holiday,
Till the live-long day-light fail;
Then to the Spicy Nut-brown Ale,
With stories told of many a feat,
How Faery Mab the junkets eat;
She was pincht, and pull'd she said,
And he by Friar's Lanthorn led;
Tells how the drudging Goblin sweat,
To earn his Cream-bowl duly set,
When in one night, ere glimpse of morn,
His shadowy Flail hath thresh'd the Corn
That ten day-labourers could not end;
Then lies him down the Lubber Fiend,
And stretch'd out all the Chimney's length,
Basks at the fire his hairy strength;
And Crop-full out of doors he flings,
Ere the first Cock his Matin rings.
Thus done the Tales, to bed they creep,
By whispering Winds soon lull'd asleep.
Tow'red Cities please us then,
And the busy hum of men,
Where throngs of Knights and Barons bold,
In weeds of Peace high triumphs hold,
With store of Ladies, whose bright eyes

Rain influence, and judge the prize
Of Wit, or Arms, while both contend
To win her Grace, whom all commend.
There let Hymen oft appear
In Saffron robe, with Taper clear,
And pomp, and feast, and revelry,
With mask, and antique Pageantry,
Such sights as youthful Poets dream
On Summer eves by haunted stream.
Then to the well-trod stage anon,
If Jonson's learned Sock be on,
Or sweetest Shakespeare, fancy's child,
Warble his native Wood-notes wild.
And ever against eating Cares,
Lap me in soft Lydian Airs,
Married to immortal verse,
Such as the meeting soul may pierce
In notes, with many a winding bout
Of linked sweetness long drawn out,
With wanton heed, and giddy cunning,
The melting voice through mazes running;
Untwisting all the chains that tie
The hidden soul of harmony:
That Orpheus' self may heave his head
From golden slumber on a bed
Of heapt Elysian flow'rs, and hear
Such strains as would have won the ear
Of Pluto, to have quite set free
His half-regain'd Eurydice.
These delights if thou canst give,
Mirth, with thee I mean to live.

1632–34.

INDEX